



FINAL



Environmental Assessment

Wing Infrastructure Development Outlook (WINDO)

Projects at

Holloman Air Force Base, New Mexico



NOVEMBER 2005

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FINDING OF NO SIGNIFICANT IMPACT (FONSI)/ FINDING OF NO PRACTICABLE ALTERNATIVE (FONPA)

1.0 NAME OF ACTION

Wing Infrastructure Development Outlook (WINDO) projects for Holloman Air Force Base, Alamogordo, New Mexico.

2.0 DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES

The United States Air Force (Air Force) proposes to implement the Wing Infrastructure and Development Outlook (WINDO) plan for Holloman Air Force Base (AFB) in Alamogordo, New Mexico. WINDO is an Air Combat Command capital improvements plan that identifies construction projects to improve the physical infrastructure and functioning of Holloman AFB. These projects support the combat effectiveness of the 49th Fighter Wing (49 FW). In general, projects would replace deteriorated or obsolete facilities and infrastructure, improve existing functionality, overcome safety hazards or violations, or provide amenities for the well being and morale of personnel.

The 49 FW has prepared this Environmental Assessment (EA) to address the environmental consequences of implementing WINDO infrastructure improvements. This EA is prepared in accordance with the National Environmental Policy Act (NEPA) (42 United States Code 4321-4347), the Council on Environmental Quality Regulations for Implementing the Procedural Provisions of NEPA (40 Code of Federal Regulations §§ 1500-1508), and 32 Code of Federal Regulations Part 989, *et seq.*, Environmental Impact Analysis Process (formerly known as *Air Force Instruction [AFI] 32-7061*). Specific WINDO projects analyzed in this EA include:

- Replacement of Eagle Water Tank;
- Construction of three Fire/Crash Rescue Stations (and demolition of two outdated facilities);
- Construction of Mobility Processing Center (and demolition of two missile assemblage buildings);
- Construction of Hazardous Cargo Pad and Taxiway;
- Improvements to Golf Course and Construction of New Clubhouse (and demolition of the existing clubhouse);
- Construction of War Reserve Materiel Storage Facility;
- Construction of Closed Storm Drain;
- Repairs to Runway 07 Open Storm Drain and Removal of Berm;
- Repair of Bong Street and Extension of Kelly Road;
- Airfield Obstruction Reduction Initiative (removal of 130 obstructions around the airfield); and
- Repair of Prather water main (located off base in the City of Alamogordo).

These projects would disturb 292 acres on Holloman AFB and about 10 acres in the City of Alamogordo. Projects on base may remove about 11 acres of wetlands. Impervious coverage would increase by 39 acres on Holloman AFB. Construction would take place over the next three years.

The Draft EA analyzed a Proposed Action implementing all the above projects, and an Alternative Action that implemented all the projects on base but not the Prather project. At a public meeting following publication of the Draft EA, additional alternatives for the Prather project were presented by the public. Based on this input, the base will not pursue the Prather project at this time until options can be reviewed

and further evaluated in a subsequent environmental document. Therefore, implementing only the on-base projects is the preferred alternative. To reflect this change in preference, the alternatives were renamed in the Final EA. The original Proposed Action is renamed Base Plus Prather Alternative, and the original Alternative Action is named the Base Only Alternative. This FONSI/FONPA therefore addresses the effects of implementing the preferred alternative, the Base Only Alternative.

3.0 SUMMARY OF ENVIRONMENTAL CONSEQUENCES

Ten resource categories were identified as having potential for environmental consequences. The analysis in this EA finds that implementation of the Base Only Alternative, with the inclusion of best management practices (BMPs) and measures from agency input and permit applications, would not result in significant impacts in any environmental resource category. The following summarizes and highlights the results of the analysis by resource.

Physical Resources. A total of 292 acres on Holloman AFB of ground disturbance, and a total of 39 acres of new impervious surface would result. The grading of existing soil and placement of engineered fill for new facilities would not substantially alter existing base soil conditions. Some areas have been previously developed; the surrounding areas are open and provide permeable areas for water absorption. In accordance with Holloman's Storm Water Pollution Prevention Plan (SWPPP), using BMPs would limit soil movement, stabilize runoff, and control sedimentation. Impacts to earth resources would not be significant.

Adherence to the SWPPP and National Pollutant Discharge and Elimination System permits requires implementation of BMPs to minimize the potential for exposed soils or other contaminants from construction activities to reach nearby surface waters. Impacts to wetlands are discussed under Biological Resources. There are no designated 100-year floodplains in the project areas; therefore, no impact to floodplains would result. Impacts to water resources would not be significant.

Biological Resources. The proposed project sites on Holloman AFB have already been disturbed by human activity or provide habitat that is characteristic and abundant in surrounding areas. There are no sensitive plant species known to occur at the project sites, and animal species found in project areas are adapted to the human environment. Holloman AFB is coordinating with the New Mexico Department of Game and Fish and U.S. Fish and Wildlife Service regarding sensitive species, but no major concerns have been identified. These agencies have provided measures to mitigate the potential loss of 11 acres of wetlands. Holloman AFB would also pursue Section 404 permitting with the U.S. Corps of Engineers and Section 401 permitting with the State of New Mexico for the potential loss of wetlands. Holloman is committed to implementing whatever actions these agencies require to reduce the potential consequences of wetland loss. The increased irrigation associated with WINDO project elements would enhance base wetlands and would be considered in the mitigation design. Impacts to biological resources would not be significant.

Air Quality. Construction activities would increase criteria pollutant annual emissions ranging from 2 to 14 percent. In general, combustive and fugitive dust emissions from proposed WINDO construction activities would produce localized, elevated air pollutant concentrations that would occur for a short duration and not result in long-term air quality impacts in Otero County (Air Quality Control Region 153). Impacts to air quality in the county would not be significant.

Noise. Construction noise as a result of the proposed projects would be noticeable in the immediate vicinity of project sites, but would not cause adverse impacts. The noise environment on and near

Holloman AFB would remain essentially unchanged from existing conditions with aircraft continuing to be the dominant noise source in the project area. Impacts from noise would not be significant.

Land Use Resources. The construction projects would improve efficiency, safety, and compatibility of functions on Holloman AFB. The projects are compatible with existing uses surrounding each project site on base. Correction of some existing incompatibilities would result. Impacts to areas surrounding the base would not be expected. Some projects on base would improve long-term circulation and safety. Overall, impacts to land use and transportation on Holloman AFB would be favorable following construction.

Socioeconomics. There would be no long-term changes in Holloman AFB population and/or employment as a result of implementation of the WINDO plan. Construction contracts for proposed projects represent a continuation of typical annual expenditures by the base to the local and regional economy.

Environmental Justice. The WINDO projects would not result in adverse environmental or health effects, and therefore would not cause disproportionately high or adverse impacts to minority, low-income, or youth populations. No significant environmental justice impacts would result.

Cultural Resources. Activities associated with the WINDO projects would not impact historic properties, archaeological sites, or traditional cultural resources. All proposed facility demolitions and modifications on Holloman AFB have been coordinated with Holloman's Cultural Resource Manager. The few structures to be affected do not meet Cold War or historic property criteria and do not merit consideration for inclusion in the National Register of Historic Places. Impacts to cultural resources would not be significant.

Safety. All projects have been sited outside any quantity-distance arcs, as appropriate. Additionally, the projects would include measures to enhance and correct airfield and clear zone safety violations. Implementing the WINDO projects would benefit the safety of mission-related operations at Holloman AFB.

Hazardous Materials and Waste Management. Hazardous materials and wastes would be handled, stored and disposed of in accordance with applicable regulations. Any asbestos containing material, lead-based paint, or contaminated soils associated with Environmental Restoration Program sites, would be removed and disposed of according to applicable regulations. Impacts to hazardous materials and waste management would not be significant.

Infrastructure. Implementing the on-base WINDO projects would improve infrastructure on Holloman AFB. There may be temporary interruption to water delivery when new water line connections are tied in to the existing distribution system for the Eagle Water tank project. New facilities would incorporate more efficient heating and cooling systems than the facilities they replace. Water use on base may increase by about 14 percent; half for irrigating the proposed golf course expansion. The base's current water supply can meet this demand, but it will rely on continued maintenance of the Prather water main to ensure reliable year-round water delivery. The proposed WINDO projects would generate construction and demolition waste that would either be recycled or taken to local and regional landfills, as appropriate. There are no capacity issues with the existing landfills. Overall, impacts to infrastructure would not be significant.

Holloman does not intend to pursue the proposed Prather water main repairs project at this time. This action will be further defined, and alternatives developed and analyzed in a subsequent environmental assessment.

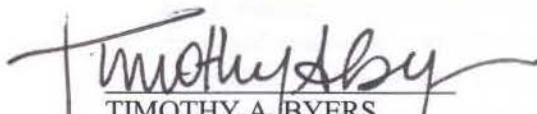
As required under NEPA, a No Action Alternative was also evaluated. Under this alternative, no environmental effects would result. However, safety benefits associated with some projects would not

occur. Jobs supported by Holloman's construction contracts would be affected, although this local sector has historically experienced irregular patterns.

4.0 CONCLUSION

This EA concludes that implementing the on-base WINDO projects would not result in significant impacts to the environment. As funding becomes available, each project would be reviewed by the 49 CES/CEV (Environmental Flight) prior to implementation to ensure that there has not been a substantive change in the base mission, project scope, environmental conditions, or environmental regulations that would warrant reevaluation of potential environmental consequences. Should there be a substantive change in scope, conditions, or regulations, a separate environmental analysis would be accomplished.

Based on these findings and provisions, issuance of a Finding of No Significant Impact is warranted, and an Environmental Impact Statement is not required. Pursuant to Executive Orders 11988 and 11990, the authority delegated in Secretary of the Air Force Order 791.1, and taking the above information into account, I find that there is no practicable alternative to this action and that the preferred alternative includes all practicable measures to minimize harm to wetland environments.


TIMOTHY A. BYERS
Colonel, USAF
Director of Installations (A7)

20 OCT 05
DATE

ACRONYMS AND ABBREVIATIONS

°F	degrees Fahrenheit	kV	kilovolt
49 FW	49 th Fighter Wing	µg/m ³	micrograms per cubic meter
AAQS	Ambient Air Quality Standards	MMG	Materiel Maintenance Group
ACC	Air Combat Command	MG	million gallons
ACM	asbestos containing material	MGD	million gallons per day
AFB	Air Force Base	MPC	Mobility Processing Center
AFI	Air Force Instruction	mph	miles per hour
AGL	above ground level	msl	mean sea level
AICUZ	Air Installation Compatible Use Zone	MVA	megavolt-ampere
Air Force	United States Air Force	NAAQS	National Ambient Air Quality Standards
AOC	Areas of concern	NEI	National Emissions Inventory
AORI	Airfield Obstruction Reduction Initiative	NEPA	National Environmental Policy Act
APE	Area of potential effect	NHPA	National Historic Preservation Act
APZ	Accident Potential Zone	NMAQB	New Mexico Air Quality Bureau
AQCR	air quality control region	NMED	New Mexico Environmental Department
AST	aboveground storage tank	NO ₂	nitrogen dioxide
BLM	U.S. Bureau of Land Management	NO _x	nitrogen oxides
BMP	best management practice	NPDES	National Pollutant Discharge Elimination System
BP	before present	NRHP	National Register of Historic Places
BWWSA	Boles Well Water System Annex	NSR	New Source Review
CAA	Clean Air Act	O ₃	ozone
CEQ	Council on Environmental Quality	OSHA	Occupational Safety and Health Administration
Census	United States Census Bureau	Pb	lead
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act	PCB	polychlorinated biphenyls
CFR	Code of Federal Regulations	PM _{2.5}	respirable particulate matter less than or equal to 2.5 micrometers in diameter
CO	carbon monoxide	PM ₁₀	respirable particulate matter less than or equal to 10 micrometers in diameter
CRMP	Cultural Resources Management Plan	POL	petroleum, oils and lubricants
CWA	Clean Water Act	ppm	parts per million
CZ	Clear Zone	PSD	Prevention of Significant Deterioration
dB	decibel	PVC	polyvinyl chloride
dba	A-weighted decibel	QD	quantity-distance
DD	Decision document	RCRA	Resource Conservation and Recovery Act
DDESB	Defense Department Explosives Safety Board	ROI	region of influence
DNL	day-night average sound level	ROW	right-of-way
DoD	Department of Defense	SHPO	State Historic Preservation Office
DRMO	Defense Reutilization and Marketing Office	SIP	State Implementation Plan
EA	Environmental Assessment	SO ₂	sulfur dioxide
EIAP	Environmental Impact Analysis Process	SO _x	sulfur oxides
EIS	Environmental Impact Statement	SWMU	Solid Waste Management Unit
EO	Executive Order	SWPPP	Storm Water Pollution Prevention Plan
EPA	United States Environmental Protection Agency	TSP	Total Suspended Particles
ERP	Environmental Restoration Program	TFW	Tactical Fighter Wing
ESA	Endangered Species Act	U.S.	United States
FAA	Federal Aviation Administration	US	US Highway
FICON	Federal Interagency Committee on Noise	USACE	United States Army Corps of Engineers
FICUN	Federal Interagency Committee on Urban Noise	USC	United States Code
FONSI	Finding of No Significant Impact	USFWS	United States Fish and Wildlife Service
FY	Fiscal Year	VOC	volatile organic compound
GAF	German Air Force	WINDO	Wing Infrastructure Development Outlook
HUD	U.S. Department of Housing and Urban Development	WRM	War Reserve Materiel
H ₂ S	hydrogen sulfide		
IAP	initial accumulation point		
IICEP	Interagency and Intergovernmental Coordination for Environmental Planning		

FINAL

Environmental Assessment

Wing Infrastructure Development Outlook (WINDO)

Projects at

Holloman Air Force Base, New Mexico

Prepared for:

49th CES/CEV (Civil Engineer Squadron, Environmental Flight)
550 Tabosa Avenue
Holloman AFB, New Mexico

November 2005

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1.0 PURPOSE AND NEED FOR ACTION

1.1 INTRODUCTION

The United States Air Force (Air Force) proposes to implement the Wing Infrastructure and Development Outlook (WINDO) plan for Holloman Air Force Base (AFB) in Alamogordo, New Mexico. WINDO is an Air Combat Command (ACC) initiative that identifies construction projects to improve the physical infrastructure and functioning of Holloman AFB. The WINDO plan coordinates land use planning and infrastructure projects, expedites project execution by using early planning, and encourages agency coordination on a suite of projects. These projects support the combat effectiveness of the 49th Fighter Wing (49 FW). Appendix A summarizes the ACC guidance for including projects in the WINDO plan.

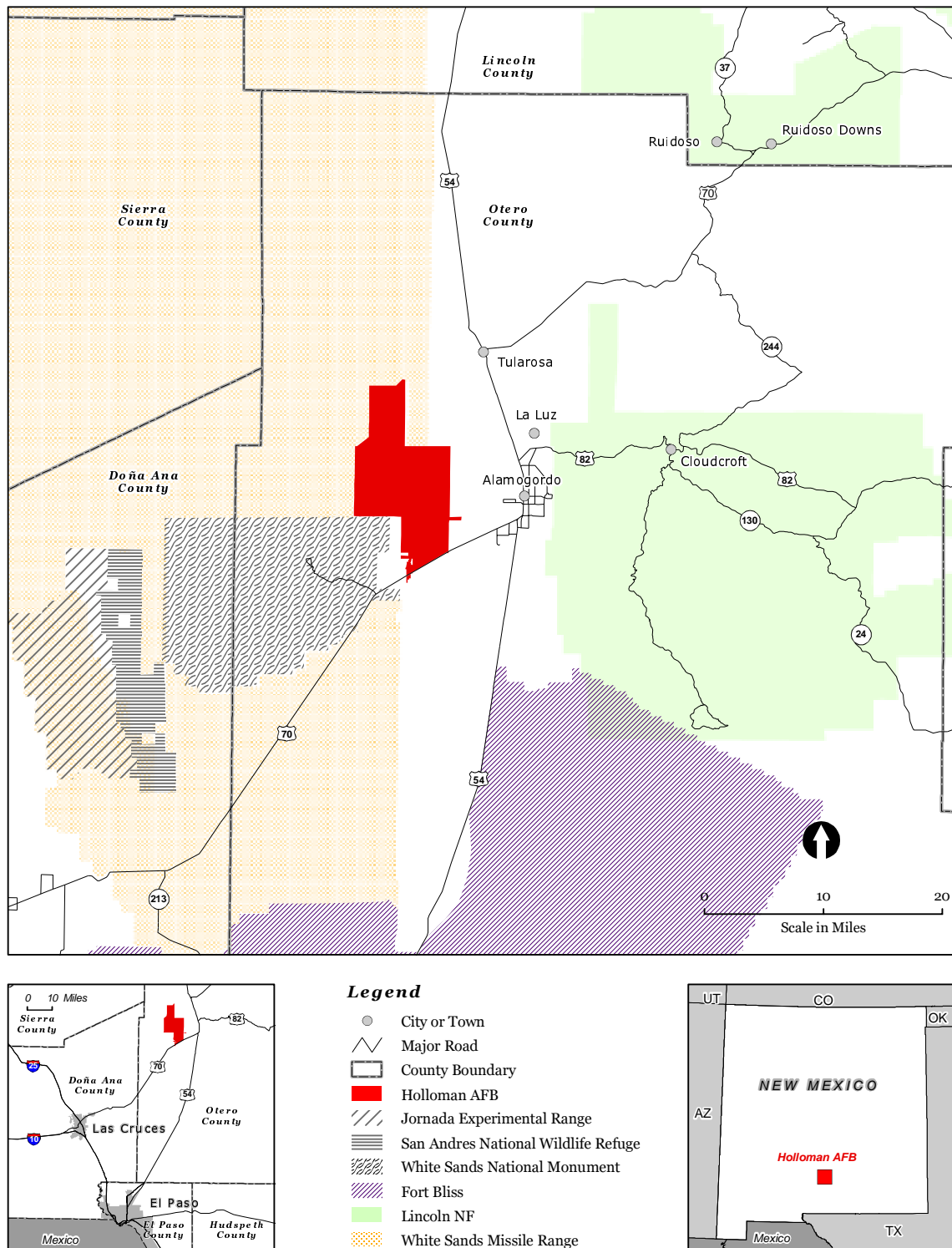
WINDO infrastructure improvements would be initiated as funding becomes available over the next three years. WINDO identifies needed new facilities, demolitions, transportation network improvements, and airfield safety obstruction removals (49 FW 2004a). The infrastructure improvements are consistent with the base's General Plan Update (49 FW 2004b).

The 49 FW has prepared this Environmental Assessment (EA) to address the environmental consequences of implementing WINDO infrastructure improvements. This EA is prepared in accordance with NEPA (42 United States Code [USC] 4321-4347), the Council on Environmental Quality (CEQ) Regulations for Implementing the Procedural Provisions of NEPA (40 Code of Federal Regulations [CFR] §§ 1500-1508), and 32 CFR Part 989, *et seq.*, Environmental Impact Analysis Process (formerly known as *Air Force Instruction [AFI] 32-7061*). This EA assesses the proposed projects individually and cumulatively for potential consequences to the human and natural environment. Two alternatives are considered in addition to a No Action Alternative.

Holloman AFB is an active military installation and continues to undergo changes in mission and training requirements in response to defense policies, future threats, and tactical and technological advances. This EA provides a baseline for future environmental analysis of such mission and training requirements.

1.2 BACKGROUND

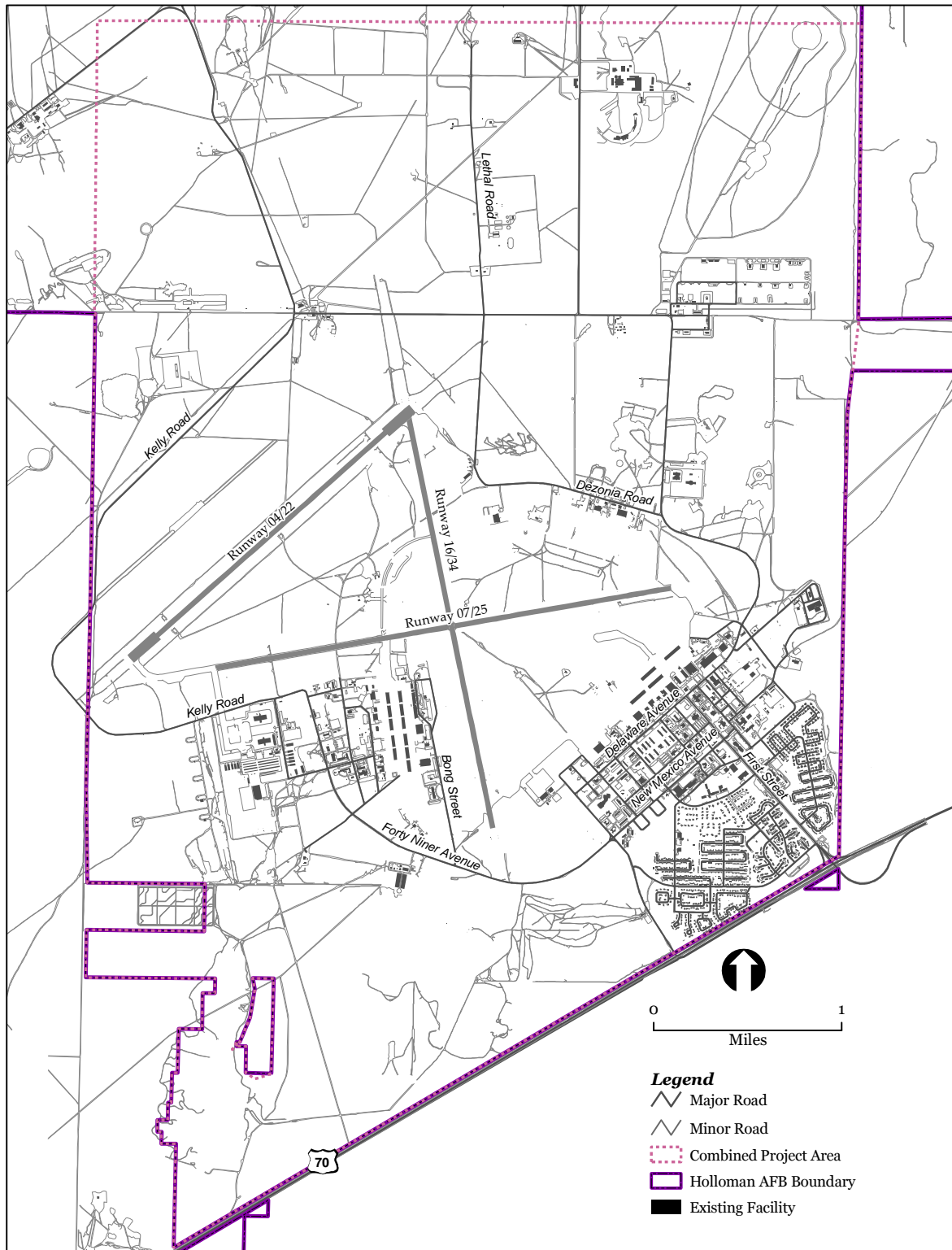
Holloman AFB is located six miles southwest of Alamogordo, New Mexico, 70 miles east of Las Cruces, New Mexico, and 86 miles north of El Paso, Texas (**Figure 1-1**). The base encompasses approximately 52,073 acres, with an additional 7,566 acres of noncontiguous land in the Boles Well Water System Annex (BWWSA). Holloman AFB has over 1,200 buildings that cover 7.23 million square feet and approximately 2.24 million square yards of airfield pavement. There are 133 miles of paved road and 73 miles of unpaved road on the base (49 FW 2004a). Holloman AFB also has the world's longest (50,788 feet) and fastest rail track for acceleration and speed tests. The primary concentration of facilities is near the airfield at the south end of the base (**Figure 1-2**).



Notes: AFB = Air Force Base; NF = National Forest

Source: HAFB n.d.a

Figure 1-1. Regional Location of Holloman Air Force Base, Alamogordo, New Mexico



Note: AFB = Air Force Base
 Sources: HAFB n.d. a,b,c,d

Figure 1-2. General Layout of Combined Project Area at Holloman AFB

Originally known as Alamogordo Army Air Field, the base has been in use by the military since 1943. During the 1940s, the Army Airfield trained aircrews for a World War II air-to-ground mission. For the 15 years following the war, the airfield became the primary site for pilot-less aircraft and missile testing for the Air Force. These programs complemented the mission of the adjacent White Sands Missile Range. In 1968, the mission emphasis shifted when the 49 FW was assigned to Holloman with F-4 Phantom II aircraft. Testing continued under the 6585th Test Group (subsequently, the 46th Test Group). The F-4 aircraft were replaced by F-15 aircraft until, in the early 1990s, F-117A stealth aircraft were assigned to the 49 FW. Between the early 1990s and 2005, the German Air Force (GAF) conducted an F-4 training program at Holloman AFB. In the late 1990s, the GAF instituted a continuing training program for the Tornado aircraft at Holloman AFB. Holloman AFB is the primary base for training and deploying for the F-117A, and continues to play a major role in Air Force testing programs.

1.3 PURPOSE AND NEED

The purpose of the infrastructure improvements identified in the Holloman AFB WINDO plan is to improve, maintain, revitalize, and expand facilities supporting current and projected Holloman AFB missions as envisioned by the Wing Commander. Holloman AFB plays a predominant role in protecting and preserving the national interests of the United States of America (U.S.). Some facilities are outdated and are no longer adequate to support current mission requirements. Other facilities needed to fulfill and support anticipated future Air Force requirements and initiatives are simply absent. Air Force Handbook 32-1084, Facility Requirements, defines standards for infrastructure and facilities to meet Air Force mission needs. Each base uses these standards to chart its development and renovations. **Table 1-1** itemizes and describes the need for each WINDO plan project evaluated in this EA. These projects are described in detail in Chapter 2. WINDO infrastructure improvement projects, with the exception of the Prather water main, are concentrated in the developed south part of Holloman AFB.

The current and anticipated future mission of Holloman AFB is to support test programs and train combat aircrews. The infrastructure improvements identified in the WINDO plan and addressed in this EA would provide the quality facilities needed to accomplish the Holloman AFB mission.

Table 1-1. List of Priority WINDO Infrastructure Improvement Projects

<i>Project Number</i>	<i>Project</i>	<i>Description and Need</i>
KWRD010099	Replace Eagle Water Tank	This 300,000-gallon elevated water tank is deteriorated and violates airfield obstruction criteria. This project would demolish the existing tank and replace it with a new tank and support structure in a nearby location that would not violate the airfield safety criteria.
KWRD003001	Fire/Crash Rescue Stations (3)	This project would demolish and replace two outdated fire stations (Buildings 304 and 869) and construct a third to improve emergency support capabilities. The new third fire station would be constructed on the north end of the airfield to provide emergency response coverage.
KWRD033006	Mobility Processing Center	Equipment mobilization and personnel deployment functions are scattered through the base. This new 125,938-square foot (11,700-square meter) facility would consolidate activities and would provide strategic access to the airfield. Site preparation would involve demolition of Buildings 920 and 921.
KWRD043006	Hazardous Cargo Pad and Taxiway	A new 240,251-square foot (22,320-square meter) hazardous cargo loading area and 859,821-square foot (79,880-square meter) taxiway are needed to facilitate safer conditions for loading hazardous cargo onto aircraft. The new location would meet safety distance criteria. No other functions or occupied buildings would lie within the safety zone.
KWRD99002R1	Improvements to Golf Course and Construction of New Clubhouse	Three fairways partially within the runway clear zone (CZ) violate CZ slope criteria. These fairways would be removed, slopes graded to meet CZ criteria, and 12 holes outside of the CZ would be constructed to complete an 18-hole course. The existing clubhouse (Building 761) and parking area would be replaced with a new 15,000-square foot (1,394-square meter) clubhouse and parking area.
KWRD013000	Construct War Reserve Materiel Facility	A new 125,938-square foot (11,700-square meter) facility, with attendant utilities and parking, would be constructed in proximity to the BEAR (Base Expeditionary Airfield Resources) Base Complex in a quantity-distance zone. The outdated missile assembly buildings may be demolished during new construction.
KWRD980148	Construct Closed Storm Drain	Parts of the open storm drain near the runway and south of 49er Avenue violate runway CZ safety criteria and present an airfield obstruction. Existing saltcedars in the CZ would be removed, a drainage pipe would be buried in the existing trench, and the surface would be graded to direct water away from the airfield.

<i>Project Number</i>	<i>Project</i>	<i>Description and Need</i>
KWRD020090A/B	Repair Runway 07 Open Storm Drain and Remove Berm	Part of the storm drain violates runway CZ safety criteria and presents an airfield obstruction. This project would enclose that part in a buried pipe and fill, smooth, and grade the surface to direct water away from the airfield. An existing earth berm on the west side of the drainage ditch would be used for fill on Holloman AFB.
KWRD9800632	Repair Bong Street and Extend Kelly Road	This project would reduce a safety hazard by rerouting traffic flow around the aircraft taxi area. It would resurface and add shoulders to along 0.4 miles (0.6 kilometers) of Bong Street. Kelly Road would be extended to intersect the north end of Bong Street and provide an alternate corridor to aircraft industrial facilities.
KWRD010018	Airfield Obstruction Reduction Initiative	This project would remove over 130 obstructions that violate airfield CZ safety criteria. Obstructions include power poles, concrete pads, curbs, manholes, parking areas, small structures, and airfield equipment. Obstructions would be demolished, buried, relocated, or reengineered.
BXSR990044	Repair Prather water main	Approximately four miles of deteriorated concrete pipeline conveys water for Holloman's use along Hamilton Road, parallel to U.S. Highway (US) 54. This pipeline is critical for maintaining reliable water supply to the base from the Boles Well Water System Annex (BWWSA). A new PVC pipe would be installed from south of the intersection with US 70 BWWSA.

Source: 49 FW/CEVP 2004

In the Draft EA, a Proposed Action (consisting of the projects listed in Table 1-1 including the Prather water main project located off base) and an Alternative Action (consisting of On-Base Projects Only) were evaluated. Subsequently, public input on the Draft EA provided some alternatives for the Prather water main project that the base wishes to evaluate further. Since the base is not in a position to do this without more detailed definition of those alternatives for the Prather project, Holloman's preferred alternative is now the Alternative Action – On-Base Projects Only. The base is not intending to implement the Prather project at this time. To reflect this shift in preference, the alternatives have been renamed in the Final EA, although their content is the same. The original Proposed Action is renamed as the Base Plus Prather Alternative. The Alternative Action is referred to as the Base Only Alternative. Table 1-2 displays the new designations used in the Final EA.

Table 1-2. Final WINDO EA Alternatives

<i>Draft EA Alternatives</i>	<i>Final EA Alternatives</i>
Proposed Action	Base Plus Prather Alternative
Alternative Action—On-Base Projects Only	Base Only Alternative
No Action Alternative	No Action Alternative

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2.0 DESCRIPTION OF ALTERNATIVES

This chapter discusses two action alternatives and the No Action Alternative. Section 2.1 describes the Base Plus Prather Alternative (originally the Proposed Action in the Draft EA). Section 2.2 describes the Base Only Alternative (the Alternative Action in the Draft EA). The No Action Alternative is presented in Section 2.3 as a baseline for comparison with the consequences of implementing the WINDO plan.

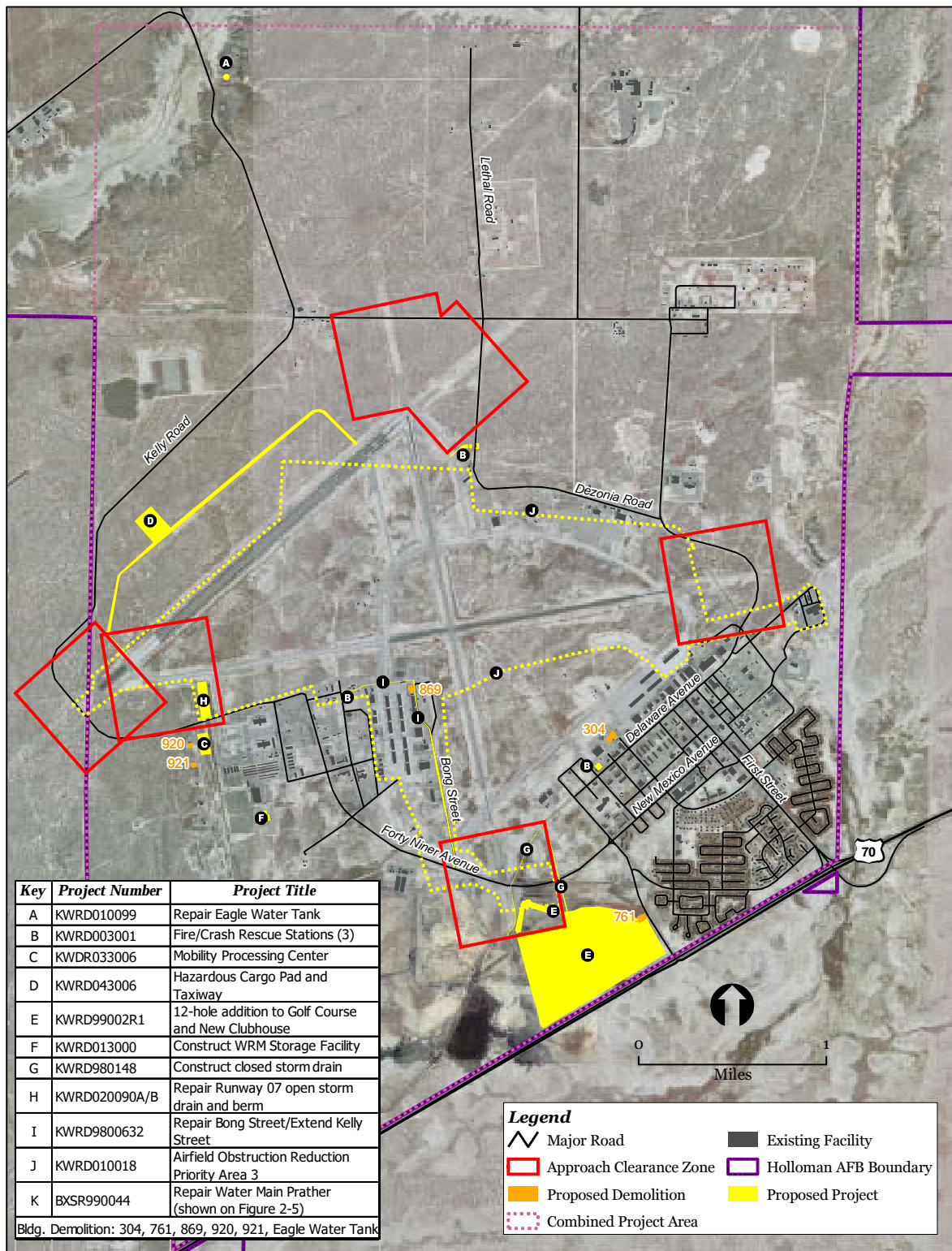
2.1 BASE PLUS PRATHER ALTERNATIVE

The Air Force proposes to implement construction and demolition projects at or in support of Holloman AFB as outline in the WINDO. The Wing Commander has identified these infrastructure improvement projects as necessary for the 49 FW to achieve its current and foreseeable future missions.

Holloman AFB personnel worked with the Wing Commander to review existing facilities, infrastructure, land use, and development constraints and to envision near-term development of the base to meet mission requirements. Seven development goals were used to identify individual projects to be included in the WINDO plan:

- Goal 1: Protection of personnel and resources;
- Goal 2: Ensuring that facilities and infrastructure support mission accomplishment;
- Goal 3: Providing for physiological and psychological needs of military families;
- Goal 4: Reducing fuel and electricity usage;
- Goal 5: Maintaining environmental quality;
- Goal 6: Identifying opportunities and physical constraints for future use of Holloman AFB by the Department of Defense (DoD); and
- Goal 7: Continuing a strong partnership with the local community.

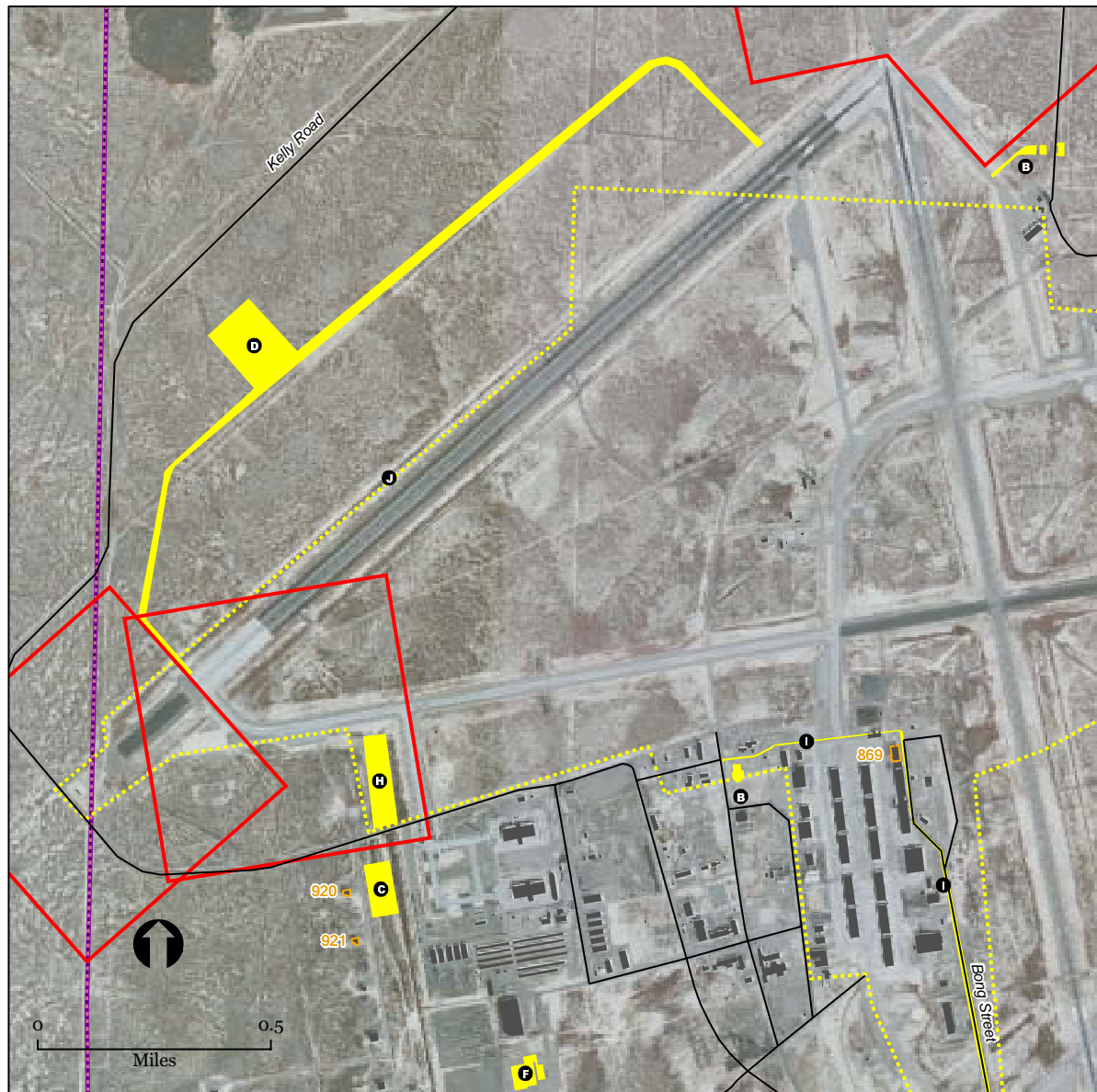
The WINDO plan upgrades the quality of existing facilities through renovation or replacement and establishes some capabilities that have been lacking. The WINDO Environmental Impact Analysis Process (EIAP) is to be revisited in three years to make adjustments to the planning process based on any changes in mission requirements or identified gaps in then current capabilities. **Figure 2-1** identifies the proposed location for each specific project on the main base. **Figures 2-2** and **2-3** show projects located in the southern part of the airfield in more detail. The Airfield Obstruction Reduction Initiative (AORI) Priority Area 3 includes approximately 130 locations around the airfield and these are shown in **Figure 2-4**. **Figure 2-5** shows the location of the Prather water main project. The Base Plus Prather Alternative would implement, as funds become available, construction of the WINDO projects listed in Table 1-1 and described in **Table 2-1**.



Note: WRM = War Reserve Materiel

Sources: HAFB n.d. a,c,d,e

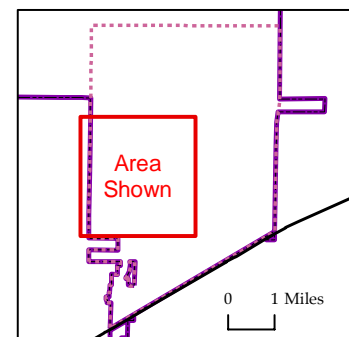
Figure 2-1. Proposed WINDO Projects Located on Holloman Air Force Base



Legend

- Major Road
- AORI Priority Area 3
- Approach Clearance Zone
- Combined Project Area
- Existing Facility
- Holloman AFB Boundary
- Proposed Demolition
- Proposed Project

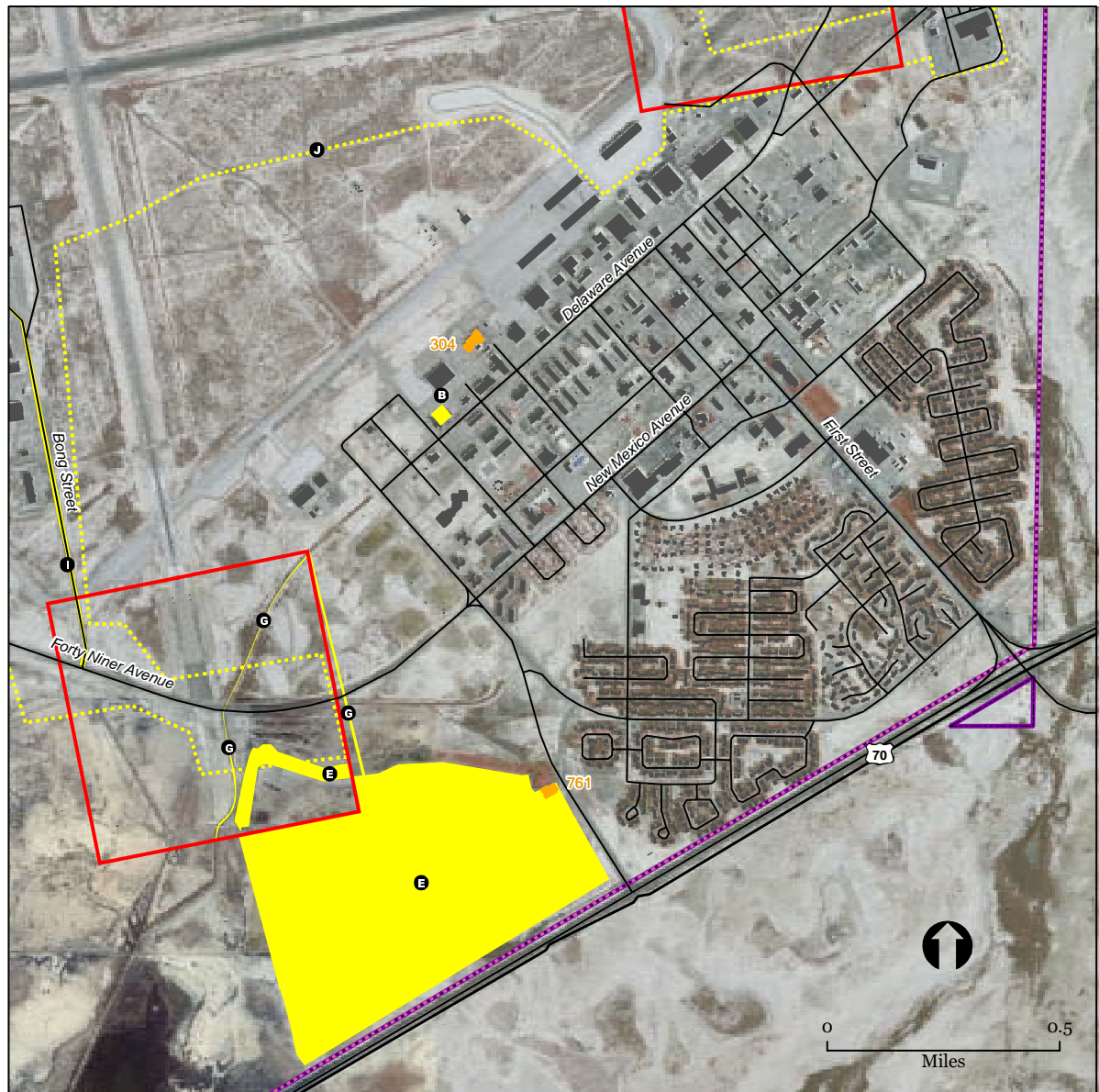
Key	Project Number	Project Title
B	KWRD003001	Fire/Crash Rescue Stations (3)
C	KWDR033006	Mobility Processing Center
D	KWRD043006	Hazardous Cargo Pad and Taxiway
F	KWRD013000	Construct WRM Storage Facility
H	KWRD020090A/B	Repair Runway 07 open storm drain and berm
I	KWRD9800632	Repair Bong Street/Extend Kelly Street
J	KWRD010018	Airfield Obstruction Reduction Priority Area 3
Bldg. Demolition: 869, 920, 921		



Notes: AORI = Airfield Obstruction Reduction Initiative; WRM = War Reserve Materiel

Sources: HAFB n.d. a,c,d,e

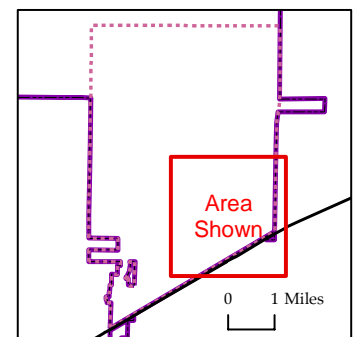
Figure 2-2. WINDO Projects—Northwest Airfield, Holloman Air Force Base



Legend

- Major Road
- AORI Priority Area 3
- Approach Clearance Zone
- Combined Project Area
- Existing Facility
- Holloman AFB Boundary
- Proposed Action
- Proposed Demolition

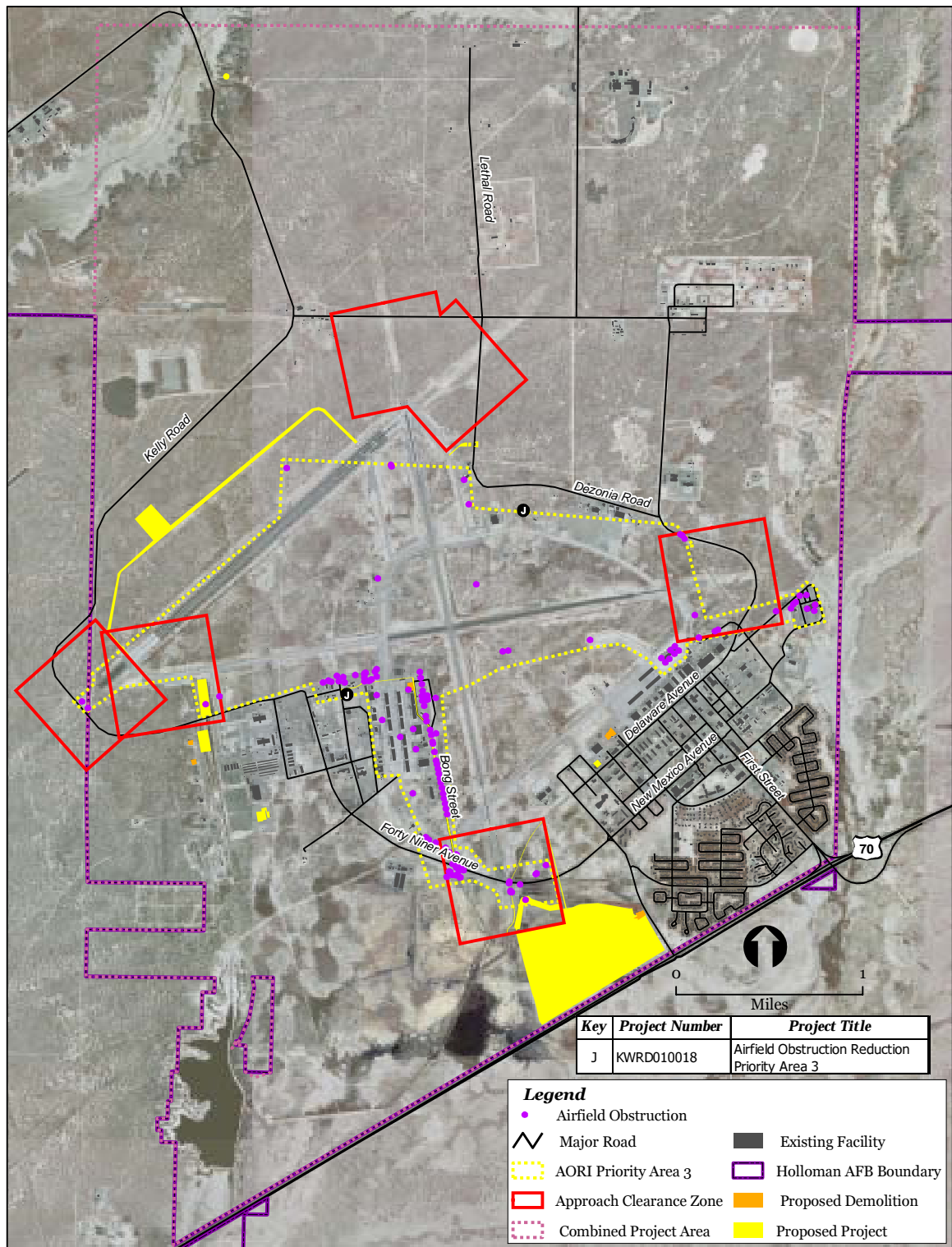
Key	Project Number	Project Title
B	KWRD003001	Fire/Crash Rescue Stations (3)
E	KWRD99002R1	12-hole addition to Golf Course and New Clubhouse
G	KWRD980148	Construct closed storm drain
I	KWRD9800632	Repair Bong Street/Extend Kelly Street
J	KWRD010018	Airfield Obstruction Reduction Priority Area 3
Bldg. Demolition: 304, 761		



Note: AORI = Airfield Obstruction Reduction Initiative

Sources: HAFB n.d. a,c,d,e

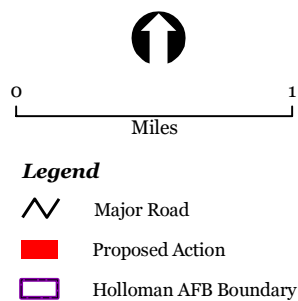
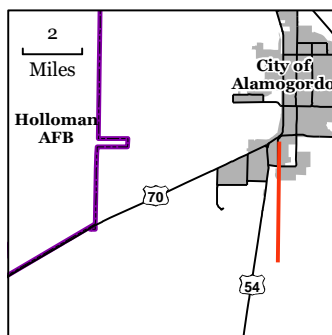
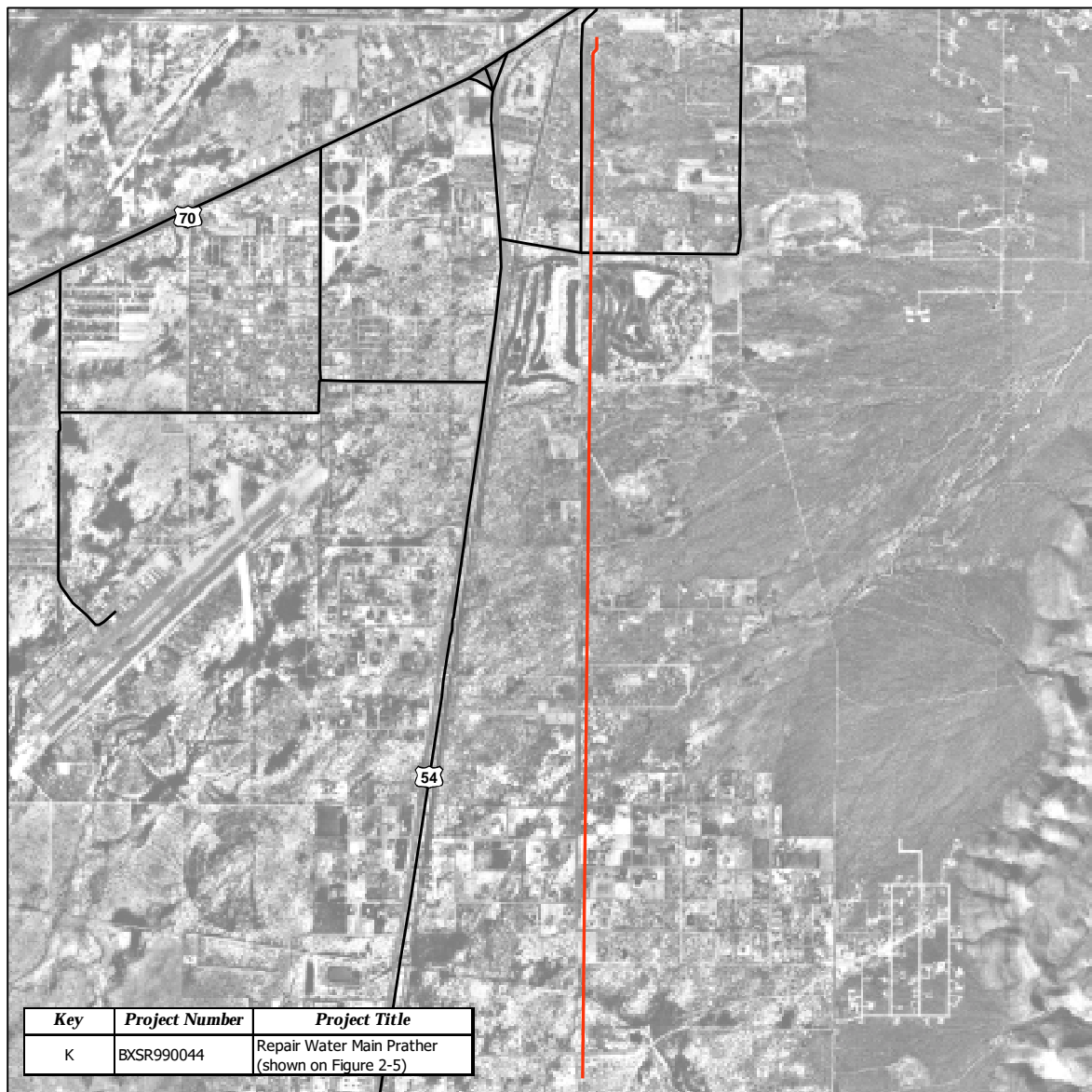
Figure 2-3. WINDO Projects—South Airfield, Holloman Air Force Base



Notes: AORI = Airfield Obstruction Reduction Initiative; AFB = Air Force Base

Sources: HAFB n.d. a,c,d,e

Figure 2-4. Airfield Obstruction Reduction Priority Area 3 Projects at Holloman Air Force Base



Note: AFB = Air Force Base

Source: HAFB n.d. a

Figure 2-5. Prather Water Main Project, Alamogordo, New Mexico

**Table 2-1. Physical Components of WINDO Construction Projects
at Holloman Air Force Base for the Years 2005-2007**

<i>Project (Number)</i>	<i>New Facility (square feet)</i>	<i>New Pavement (square feet)</i>	<i>Demolition¹ (square feet)</i>	<i>Ground Disturbance (acres)</i>	<i>Net Impervious Surface (acres)</i>
Repair Eagle Water Tank ² (KWRD01009)	0	5,000	5,000	0.6	0
3 Fire/Crash Rescue Stations ³ (KWRD003001)	63,685	139,170	45,920	7.1	3.6
Mobility Processing Center ⁴ (KWRD033006)	125,000	125,000	3,780	8.3	5.7
Hazardous Cargo Pad and Taxiway (KWRD043006)	0	1,135,600	0	32.6	26.1
Addition to Golf Course and New Clubhouse ⁵ (KWRD99002RI)	15,000	6,000	8,940	210.7	0.3
Construct War Reserve Materiel Facility (KWRD013000)	125,880	0	0	3.6	2.9
Construct Closed Storm Drain (KWRD980148)	0	0	0	11.7	0
Repair Runway 07 Open Storm Drain and Berm (KWRD020090A/B)	0	0	0	9.4	0
Repair Bong Street and Extend Kelly Road (KWRD9800632)	0	102,275	66,125	8.1	0.8
Airfield Obstruction Reduction Priority Area 3 ⁶ (KWRD010018)	0	0	0	0.3	0
Prather water main (KWRD990044)	0	0	0	9.7	0
Total⁷	329,565	1,513,045	129,765	302	39

Notes: ¹Demolition includes facilities and pavement.

²Demolish existing concrete pads.

³Demolish Buildings 304 and 869.

⁴Demolish Buildings 920 and 921.

⁵Demolish Building 761 and 5,000 square-foot parking area.

⁶Ground disturbance estimated for removal, relocation, and surface grading associated with 130 small projects around the airfield. Work may include demolition of concrete pads and small structures and pouring new pads in new locations.

⁷Totals may not add up due to rounding. All values are approximate, based on reasonable estimates of the work involved.

Existing built and environmental constraints were comprehensively addressed during project planning. Built constraints include airfield clearances, Air Installation Compatible Use Zone (AICUZ) noise considerations, quantity-distance (QD) explosive safety zones, and potential historic sites. Environmental constraints include the Environmental Restoration Program (ERP) and Solid Waste Management Unit (SWMU) sites, landfills, flood plains, wetlands, and endangered species locations and habitats.

The WINDO plan involves demolition of facilities that are obsolete, deteriorated, in airfield clear zones (CZ), or located on proposed construction sites. Proposed demolition activities addressed in this EA are listed in **Table 2-2**. Hazardous material, such as asbestos and lead-based paint, would be removed in accordance with Air Force regulations prior to demolition.

The projects included in the Holloman AFB WINDO plan would be constructed over the next three years as funding becomes available. Funding availability could delay specific projects beyond the three-year WINDO Plan. As described in Appendix B, an updated WINDO plan and associated EIAP are scheduled every three years. This EA serves as a baseline document for future Holloman AFB WINDO plans and EIAP documents.

Table 2-2. WINDO Demolition Projects at Holloman AFB, 2005-2007

<i>Demolition Action</i>	<i>Size</i>	<i>Year Constructed</i>	<i>Notes</i>
Eagle Water tank	300,000-gallon tank and support structure 5,000-square foot concrete pavement	1957	Lead-based paint on tank
Building 304	18,930 square feet	1956	Building has asbestos-containing material
Building 869	10,780 square feet	1965	Building has asbestos-containing material
Building 920	1,890 square feet	1959	—
Building 921	1,890 square feet	1959	—
Building 761	2,940 square feet	1957	—
Bong Road/Kelly Road	0.5-mile asphalt pavement	—	—

Each of the proposed on-base WINDO projects is described below and shown in Figure 2-1.

Replace Eagle Water Tank (KWRD010099). This project entails replacing the existing 300,000-gallon water tank with a similar structure at a nearby location outside of the airfield obstruction-free zone. Demolition of the existing tank would follow construction of the new tank. Demolition includes dismantling of the existing water tank and support structure, and removal of the 5,000-square foot (465-square meter) concrete pad. The scrap steel would be recycled through the Defense Reutilization and Marketing Office (DRMO). There is lead-based paint on the existing tank and in the surrounding area from past sand blasting. A lead

abatement plan would guide the removal process. The new site is located about 900 feet (274 meters) from the existing water tank. The new site was identified to avoid, to the extent possible, cultural sites, floodplains, and wetlands. A new 5,000-square foot (465-square meter) concrete pad would be constructed to support the new tank. A new pipe from the current water distribution line to the new tank would require trenching and disturb approximately 0.6 acres.

Fire Crash/Rescue Stations (KWRD003001). Three fire facilities would to be strategically located to minimize emergency response times. Two would replace existing fire stations, requiring extensive infrastructure and structural repairs. The third would provide needed response times to the north side of the airfield. The total construction would involve about 63,712 square feet (5,919 square meters) of new facility, and about 127,400 square feet (11,840 square meters) of new pavement and access road. These facilities would require an onsite backup power source.

Fire Station No. 1 (33,045 square feet [3,070 square meters]). The main fire station would be constructed on the site of former Building 524. This would be the largest facility, providing the fastest response to most of the developed cantonment area, including residential areas. The site has been previously developed and is, for the most part, paved. The new fire station would replace Building 304 (18,930 square feet [1,760 square meters]), which would be demolished. This structure has asbestos containing materials.

Fire Station No. 2 (21,388 square feet [1,987 square meters]). This facility is sited in the southwest quadrant of the airfield, a location that allows quick response to airfield emergencies, the BEAR Base area, and the F-117A ramp area. The site has been previously disturbed and has an abandoned pad. This fire station replaces Building 869 (10,780 square feet [1,002 square meters]), which would be demolished. This structure has asbestos containing materials.

Fire Station No. 3 (9,279 square feet [862 square meters]). This facility would serve the north end of the airfield and the 46th Test Group facilities to the west. The new facility would also have almost 40,000 square feet (3,716 square meters) of asphalt parking and concrete apron, and a 1,722-foot (160-meter) access road.

Mobility Processing Center (MPC) (KWRD033006) (125,938 square feet [11,700 square meters]). The proposed site for this facility is on the west side of the airfield, south of Runway 07. The facility would consolidate functions currently scattered among several facilities on base for processing personnel and equipment for worldwide mobilization efforts. The project includes a new paved vehicular connection across the Runway 07 open storm drain to the BEAR Base enclave and C-130 ramp. A culvert would be installed under the roadway.

The new MPC would house passenger briefing and holding areas, the deployment control center, supply and equipment storage, a freight terminal, administration, and the flight kitchen. The project would also construct a 125,000 square-foot (11,613-square meter) concrete parking area, for a total of almost 6 acres of new impervious surface. The new pavement would be graded to let storm water sheet flow off the pavement to the east, into the existing open storm water channel. Because the site is slightly lower than surrounding areas, fill material would be used to elevate the building pad. The fill material would come from the berm along the Runway

07 open storm drain or from an on-base borrow area. The facility would require onsite backup power generation.

Currently, there are two nearby facilities, Buildings 920 and 921, which store munitions and, therefore, the buildings carry QD safety setbacks that restrict construction and uses in adjacent land. Munitions storage can be consolidated at existing facilities on base to make the new facility compatible with the QD criteria. Buildings 920 and 921 (each covering 1,890 square feet [176 square meters]) would be demolished.

Hazardous Cargo Pad and Taxiway (KWRD043006). This project involves construction of a 5.5 acre pad on the west side of Runway 04/22 for loading and unloading hazardous cargo (e.g., explosives). A new 11,319-foot (3,450-meter) taxiway, covering 19.7 acres, would connect the hazardous cargo pad to the runway. Currently, hazardous cargo is loaded on a pad along Taxiway L within the runway CZ. Runways 04/22 and 07/25 are frequently closed during hazardous cargo loading operations. The new pad would allow for loading of hazardous cargo away from aircraft parking and maneuvering areas. A small access road would also be constructed to the new cargo pad. The proposed taxiway alignment would overlap with an unpaved area used as a skid pad for helicopter touch and go operations. Aircraft would taxi to the cargo pad and then to an active runway. Aircraft would not perform engine run-up near the pad.

Improvements to Golf Course and Construction of New Clubhouse (KWRD99002RI). Three existing golf course holes within the airfield CZ would be removed and the area graded to meet slope criteria. Twelve new holes would be constructed outside the CZ to bring the course to 18 holes. Disturbed areas in the CZ (about 7 acres) would be revegetated using native seed mix suited for alkaline and saline soils. An area of about 203 acres outside the CZ would be landscaped for the golf course expansion. Irrigation water demand (about 0.168 million gallons per day [MGD]) would be supplied from the Holloman AFB potable water system. Unused Holloman AFB water allotments would be adequate to meet water demands.

The project also involves demolition of the existing clubhouse (Building 761), and construction of a new 15,000-square foot (1,394-square meter) clubhouse close to the existing site. The existing parking area would be demolished and replaced with a 6,000-square foot (557-square meter) paved parking area.

Construct WRM Storage Facility (KWRD013000). This project involves construction of a new 125,938-square foot (11,700-square meter) facility with site improvements (utilities, parking, sidewalks, and access) in the Materiel Maintenance Group (MMG) area (also known as the BEAR Base enclave). Siting is in proximity to a QD zone from the old missile assembly facilities.

Construct Closed Storm Drain (KWRD980148). The existing open storm drain (see Figure 2-1) at the south end of Runway 07/25 is partially within the runway CZ. The depression of the ditch exceeds a 2 percent grade criteria for CZs. New pipe would be installed underground, extending the existing underground storm drains from Delaware Avenue to a new outfall about 4,750 feet (1,148 meters) below the originating point. The project would remove existing vegetation (about 11 acres) along this portion of the open drain. Methods to remove saltcedar,

the dominant vegetation in the open storm drain, include physical clearing and pesticide application to cut stumps. A second segment of this open drain system, within the CZ on the south side of 49er Avenue, would also be enclosed in a buried drain. The open storm drain would be filled with soil and graded to conform to meet the less than 2 percent slope criteria. The disturbed area (less than 1 acre) would be revegetated with native seed mix. At the outfall, a rock apron would be placed in the existing open storm drain to minimize erosional force of water.

An optional alignment would construct an open storm drain (see Figure 2-1) outside the CZ from Delaware Avenue to existing wetlands in the golf course, a distance of about 3,450 feet. This option would remove about 2.4 acres of saltcedar and vegetation, as described above. Surface area within the CZ would be graded to meet the 2 percent slope criteria.

Repair Runway 07 Open Storm Drain (KWRD020090A/B). This project removes CZ obstructions from the open storm drain, ditch and adjacent berm along the south end of Runway 07. This area encompasses 6.9 acres. The project would remove headwalls and the outfall structure within the CZ and would remove vegetation in the ditch between the runway and adjacent road to the west. A new pipe would be installed in the ditch and the ditch would be filled and graded to meet the less than 2 percent slope criteria for CZs. The adjacent berm would be the source for borrow material. Disturbed areas would be planted with drought resistant native seed mixes. Remaining berm borrow materials would be used for building the pad for the MPC (described above) or for other base construction.

Repair Bong Street and Kelly Road Extension (KWRD9800632). This project provides improved perimeter circulation around the F-117A area following placement of anti-terrorism perimeter fencing. Repairs include demolition of concrete curb and gutter along 0.4 mile (0.6 kilometers) of Bong Street, resurfacing with 8-inch (20-centimeter) asphalt cement, and installation of new concrete curb and gutters. The south portion of the road, between the F-117 area and 49er Avenue, would be demolished and the debris taken to the concrete/asphalt reuse area.

Kelly Road would be extended 0.5 mile (0.8 kilometer) to access the north end of Bong Street. Rerouting traffic flow around the aircraft taxi area would reduce a safety hazard. The approximate 2,650-foot (808-meter) extension would have a 24-foot (7-meter) wide roadbed with 6-foot (1.8-meter) wide asphalt cement shoulders on each side. The existing road within 1,000 feet (305 meters) of the runway centerline would be removed. Total ground disturbance would be approximately 4 acres.

Airfield Obstruction Reduction Initiative (KWRD010018). Over 130 constructed and natural features in and around the airfield violate airfield safety criteria. Airfield clearance criteria use lateral and vertical dimensions to define an obstruction-free volume around the runway. Examples of existing obstructions include light and power poles, concrete pads, airfield equipment, curbs, manholes, small structures, berms, swales, and parking areas. Figure 2-3 shows the location of the items to be removed under this Priority Area 3 initiative. Items would be demolished, buried in place, relocated, or reengineered. For the purpose of this analysis, each

removed item is assumed to disturb 100 square feet (9 square meters). The combined disturbance would be approximately one third of an acre dispersed around the airfield.

The following off-base project is evaluated in this EA, but is no longer being pursued at this time.

Repair Prather water main (BXS99044). The Prather water main is the sole means of conveying the Bonito Lake water allotment to Holloman AFB. The 4-mile segment runs along Hamilton Road in the City of Alamogordo from the US 70 overpass south to the BWWSA. This segment of 16-inch (41-centimeter) steel-wrapped concrete pipeline leaks and bursts on a recurring basis; continued maintenance is not cost effective. The City of Alamogordo installed the 16-inch pipeline in 1958 within an existing 20-foot (6-meter) right-of-way (ROW). A second 10-inch (25-centimeter) asbestos wrapped steel line was installed by the city parallel to the 16-inch line. Holloman AFB owns the 10-inch line. North of the county club on the east side of Hamilton Road, the city installed a sanitary sewer line in the ROW. The sewer line was separated from the water line by an underground concrete wall.

The 4-mile (6.4-kilometer) segment of Prather water main would be repaired under a design/build contract. Four options under consideration are described below. Under any option, two pressure reduction valves would be installed near the diversion point (where the 16-inch line intercepts an 18-inch line [46-centimeter] to Holloman AFB). Under any option, the construction contract would require work to minimize disruption of access to residents and other facilities. Where access would be disrupted for longer than a few hours, alternate access would be provided.

Option 1

The old 16-inch line would be removed and a new line installed approximately in the same trench. The demolition debris from the old line would be taken to the regional landfill. Because of proximity, the asbestos-wrapped line would also be removed, requiring special handling and disposal in accordance with applicable regulations. The area disturbed by excavation of the 6-foot (1.8-meter) wide trench is estimated at 3 acres, and the additional area that could be temporarily disturbed by staging and moving of equipment and workers (and cleared of vegetation) is estimated at about 6.8 acres (or an additional 7 feet [2.1 meters] on either side of the trench). In some places, asphalt pavement may be cut for the new trench. All surfaces and property would be returned to its original (or improved) condition as part of the installation. The preferred material for the new pipe is polyvinyl chloride (PVC). The existing concrete pipe is in 33-foot (10-meter) sections, each weighing about 8,000 pounds. Removal involves some onsite crushing, loading debris onto trucks, and hauling material to the regional landfill.

Option 2

The old line would be abandoned in place and a new line installed. Because of lack of space in the existing ROW, the alignment for the new line may fall outside the easement and require widening of the easement. As described above, the trench for the pipeline would be about 6 feet (1.8 meters) deep and 6 feet wide. Equipment and site work may temporarily disturb land within a distance of about 10 feet on either side of the trench. This is a conservative estimate

considering that much of the adjacent land is paved and would be used for maneuvering equipment.

Option 3

This option would involve pipe-bursting and sleeving the old pipe with a new pipe of the same or larger diameter. This option would involve trenching along the pipe alignment in order to perform the replacement. Old concrete and steel debris would be removed.

Option 4

A similar process to Option 3, this option would slip line the existing pipe and thus avoid the need to remove it. This option is feasible only if a smaller diameter pipe is adequate to deliver anticipated flows at existing pressures.

Summary of Area Disturbed and Construction Practices

Total estimated ground disturbance to implement these WINDO projects over the next 3 years is approximately 302 acres (an estimated 292 acres on base and 10 acres off base), with a net increase of 39 acres of impervious coverage on base. Approximately 11 acres of the disturbed area on base is within areas delineated as wetlands.

For all WINDO projects both on and off base, several methods would be used during construction to minimize potential environmental effects. Appendix C provides a list of best management practices (BMPs) and other standard measures commonly used by Holloman and included in construction contracts. The list is representative of requirements for a specific project. Some BMP measures are from existing base permits, such as the base National Pollutant Discharge Elimination System (NPDES) permits. NPDES permits are primarily related to storm water runoff, erosion, and dust abatement. Other contract BMPs may be used to address a specific project or site condition.

2.2 BASE ONLY ALTERNATIVE

Under this alternative, Holloman AFB would implement all the on-base WINDO projects identified under Section 2.1 and listed in Figure 2-1. The Prather water main project (shown in Figure 2-5) would not be included in this alternative. Following public meetings on the Draft EA, this has become the preferred alternative. Total ground disturbance is estimated to be approximately 292 acres, all on base. Holloman AFB would continue to use Operations and Maintenance funds and personnel to repair the deteriorated Prather water main to keep it functioning. Maintenance activities would be expected to increase over time as the line further deteriorates.

2.3 NO ACTION ALTERNATIVE

Under the No Action Alternative, the 49 FW would maintain its existing facilities and would not build or demolish any facilities. In general, the No Action Alternative would require that the 49 FW continue to operate under unnecessarily inefficient and, in some cases, unsafe conditions. Under the No Action Alternative, these deficiencies would continue to impair the 49 FW's ability to successfully conduct their mission and to maintain wartime readiness and

training. Should the No Action Alternative be selected, Holloman AFB and the 49 FW could not adequately meet future mission requirements or changes due to deteriorating facilities and would not meet its WINDO development goals. On and off base maintenance activities would be expected to increase over time as facilities further deteriorate. Consequences of implementing the No Action Alternative include:

- Compromised combat capability and mission readiness;
- Nonoptimal facilities for military and civilian staff;
- Compromised modernization of the force;
- Ongoing inefficient operating costs; and
- Continued obstructions hampering airfield safety.

Alternatives Considered but Not Carried Forward for Analysis

The action alternatives consist of a series of projects that may or may not be implemented. If a specific project were found to be substantively changed in scope from the WINDO list, if environmental characteristics were changed, if regulations had changed, or if base mission changes affected the project, the project could be excluded from the WINDO plan without affecting other WINDO projects.

Any subset of the WINDO projects could be implemented based upon availability of funding. All the WINDO projects were addressed individually and cumulatively and the consequences were not found to be significant for environmental resources. Any subset of projects would, likewise, not have significant environmental impacts. Alternative subsets of projects were not carried forward for further independent analysis.

The individual projects would be prioritized and implemented as funding becomes available. The alternatives evaluated encompass all the current priority projects and the analysis describes the specific and cumulative consequences of implementing the WINDO plan. Since project phasing is expected to occur, based on funding, no phasing alternatives were carried forward for independent analysis.

2.4 ENVIRONMENTAL IMPACT ANALYSIS PROCESS

The EIAP is used to evaluate a proposal's potential environmental effects, and to notify and involve the public in the agency's decision-making process. The proponent of a given action is ultimately responsible for compliance with the EIAP. The Air Force EIAP requires that decisions on proposals be based on an understanding of the potential environmental effects of the Proposed Action and its reasonable alternatives, including the No Action Alternative. This EA has been prepared to evaluate the potential environmental consequences of implementing the WINDO plan for Holloman AFB.

The following environmental resources have the potential to be affected by the WINDO projects: physical resources, biological resources, air quality, noise, land use resources, socioeconomics, environmental justice, cultural resources, safety, hazardous materials and

waste management, and infrastructure. Chapter 3.0 describes the affected environment for these resources and Chapter 4 addresses the potential environmental consequences of selecting the Base Plus Prather Alternative, Base Only Alternative, or the No Action Alternative. A comparison of the environmental consequences is presented in Section 2.7. Airspace management is not included for detailed consideration in this EA because there are no proposed changes in airspace use or management. None of the WINDO projects would cause long-term changes in visual conditions in areas beyond the base boundary, so visual resources are not separately analyzed.

2.4.1 Public and Agency Involvement

Executive Order (EO) 12372, *Intergovernmental Review of Federal Programs*, requires intergovernmental notifications prior to making a detailed statement of environmental impacts. Through the process of Interagency and Intergovernmental Coordination for Environmental Planning (IICEP), the proponent must notify concerned federal, state, and local agencies and allow them sufficient time to evaluate potential environmental impacts of a proposed action. Correspondence to all relevant federal, state and local agencies will be initiated and will be included as an appendix to this EA.

The Air Force announced the availability of the Draft EA for public and agency review to facilitate public involvement in this project. This advertisement appeared in the *Alamogordo Daily News* on March 13, 2005, and the *Holloman Sunburst* on March 11, 2005. Holloman AFB held a public meeting in Alamogordo on March 31, 2005 to present this proposal and to provide an opportunity for public comment. Meeting times and locations were advertised in the local newspaper.

The public provided input on alternatives for the Prather project. The base wishes to evaluate these further. However, the base is not able to define and analyze these new concepts in adequate detail in the timeline needed to support a decision on the WINDO projects and funding cycles. Therefore, the base is selecting the Base Only Alternative as its preferred alternative and will defer the Prather project until it has been further assessed in a supplemental or separate environmental document. The Finding of No Significant Impact and Finding of No Practicable Alternative (FONSI/FONPA) for this EA is made for the Base Only Alternative.

2.4.2 Regulatory Compliance

2.4.2.1 National Environmental Policy Act (NEPA)

NEPA requires federal agencies to take into consideration the potential environmental consequences of proposed actions in their decision-making process. The intent of NEPA is to protect, restore, and enhance the environment through well-informed federal decisions. The CEQ was established under NEPA to implement and oversee federal policy in this process. The CEQ subsequently issued the Regulations for Implementing the Procedural Provisions of the NEPA (40 CFR Sections 1500–1508). These requirements specify that an EA be prepared to:

- Briefly provide sufficient evidence and analysis for determining whether to prepare an Environmental Impact Statement (EIS) or a FONSI;

- Aid in an agency's compliance with NEPA when an EIS is not necessary; and
- Facilitate preparation of an EIS when one is necessary.

The activities addressed within this document constitute a federal action and therefore must be assessed in accordance with NEPA. To comply with NEPA, as well as other pertinent environmental requirements, the decision-making process for the Proposed Action includes the development of this EA to address the environmental issues related to the proposed activities. The Air Force implementing procedures for NEPA are contained in 32 CFR Part 989 *et seq.*, *Environmental Impact Analysis Process*.

2.4.2.2 *Endangered Species Act*

The Endangered Species Act (ESA) of 1973 (16 USC §§ 1531–1544, as amended) established measures for the protection of plant and animal species that are federally listed as threatened and endangered, and for the conservation of habitats that are critical to the continued existence of those species. Federal agencies must evaluate the effects of their proposed actions through a set of defined procedures, which can include the preparation of a Biological Assessment and can require formal consultation with the United States Fish and Wildlife Service (USFWS) under Section 7 of the Act.

2.4.2.3 *Clean Air Act*

The Clean Air Act (CAA) (42 USC §§ 7401–7671, as amended) provided the authority for the EPA to establish nationwide air quality standards to protect public health and welfare. Federal standards, known as the National Ambient Air Quality Standards (NAAQS), were developed for six criteria pollutants: ozone (O₃), nitrogen dioxide (NO₂), carbon monoxide (CO), sulfur dioxide (SO₂), particulate matter (PM), and lead (Pb). The CAA also requires that each state prepare a State Implementation Plan (SIP) for maintaining and improving air quality and eliminating violations of the NAAQS. Under the CAA Amendments of 1990, federal agencies are required to determine whether their undertakings are in conformance with the applicable SIP and demonstrate that their actions will not cause or contribute to a new violation of the NAAQS; increase the frequency or severity of any existing violation; or delay timely attainment of any standard, emission reduction, or milestone contained in the SIP.

2.4.2.4 *Water Resources Regulatory Requirements*

The Clean Water Act (CWA) of 1977 (33 USC § 1251 *et seq.*) and the EPA Storm Water General Permit regulate pollutant discharges that could affect aquatic life forms or human health and safety. Section 404 of the CWA and EO 11990, *Protection of Wetlands*, regulate development activities in or near streams or wetlands. Section 404 regulates development in streams and wetlands and requires a permit from the United States Army Corps of Engineers (USACE) for dredging and filling in wetlands. EO 11988, *Floodplain Management*, requires federal agencies to take action to reduce the risk of flood damage; minimize the impacts of floods on human safety, health, and welfare; and to restore and preserve the natural and beneficial values served by floodplains. Federal agencies are directed to consider the proximity of their actions to or within floodplains.

2.4.2.5 Cultural Resources Regulatory Requirements

The National Historic Preservation Act (NHPA) of 1966 (16 USC § 470) established the National Register of Historic Places (NRHP) and the Advisory Council on Historic Preservation, outlining procedures for the management of cultural resources on federal property. Cultural resources include archaeological remains, architectural structures, and traditional cultural properties such as ancestral settlements, historic trails, and places where significant historic events occurred. NHPA requires federal agencies to consider potential impacts to cultural resources that are listed, nominated to, or eligible for listing on the NRHP; designated a National Historic Landmark; or valued by modern Native Americans for maintaining their traditional culture. Section 106 of NHPA requires federal agencies to consult with State Historic Preservation Officers (SHPO) if their undertakings might affect such resources. *Protection of Historic and Cultural Properties* (36 CFR 800 [1986]) provided an explicit set of procedures for federal agencies to meet their obligations under the NHPA, which includes making an inventory of resources and consultation with SHPO.

The American Indian Religious Freedom Act (42 USC § 1996) established federal policy to protect and preserve the rights of Native Americans to believe, express, and exercise their traditional religions, including providing access to sacred sites. The Native American Graves Protection and Repatriation Act (25 USC §§ 3001–3013) requires consultation with Native American tribes prior to excavation or removal of human remains and certain objects of cultural importance.

2.4.2.6 Other Regulatory Requirements

Additional regulatory legislation that potentially applies to the implementation of this proposal includes guidelines promulgated by EO 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, to ensure that citizens in either of these categories are not disproportionately affected. Additionally, potential health and safety impacts that could disproportionately affect children must be considered under the guidelines established by EO 13045, *Protection of Children from Environmental Health Risks and Safety Risks*.

In a policy formulated to address EO 13084, *Consultation and Coordination with Indian Tribal Governments*, the DoD has clarified its policy for interacting and working with federally recognized American Indian and Alaska Native governments. Under this policy guidance, proponents must provide timely notice to, and consult with, tribal governments prior to taking any actions that have the potential to affect protected tribal resources, rights, or lands. Tribal input must be solicited early enough in the planning process that it may influence the decision to be made. The Mescalero-Apache tribal lands are located east of Holloman AFB in the Sacramento Mountains. This tribe has been included in IICEP mailings for this action.

2.5 PERMIT REQUIREMENTS

This EA has been prepared in compliance with NEPA, other federal statutes, such as the CAA and the CWA, and applicable state statutes and regulations. A list of Holloman AFB permits was compiled and reviewed during the EA process. **Table 2-3** summarizes these applicable federal, state, and local permits and the potential for change to the permits due to the Proposed

Action. Management actions and procedures would need to be reviewed, coordinated and updated, as necessary, to ensure Air Force compliance with applicable instructions, guidance, and directives.

Table 2-3. Permit Requirements for On-Base Holloman WINDO Implementation

<i>Permit</i>	<i>Resource</i>	<i>Description</i>
Federal Clean Water Act (CWA)—Section 404 (Corps of Engineers) and Section 401 (NMED Surface Water Quality Bureau)	Wetlands	Joint application to obtain permit from Corps of Engineers and water quality certification from NMED/Surface Water Quality Bureau. Application required to excavate or fill wetland or waters of the U.S. Approval and possible mitigations would be defined in the approval.
Holloman Air Force Base, National Pollutant Discharge Elimination System, Multi-Sector General Permit for Industrial Activities	Stormwater runoff	Proposed on-base projects would need to comply with existing permit terms. A change to the permit may be required to address additional storm water outfall areas.
National Pollutant Discharge Elimination System, Storm Water General Permit for Small Construction Program	Surface water	All operators of construction site activities that result in a land disturbance of equal to or greater than 1 acre must apply for the general permit by submitting a Notice of Intent to EPA that includes a Stormwater Pollution Prevention Plan and erosion and sediment control plan that include site-specific best management practices and measurable goals for implementation and maintenance.

Note: EPA = U.S. Environmental Protection Agency; NMED = New Mexico Environment Department

2.6 COMPARISON OF ALTERNATIVES

Table 2-4 summarizes the potential environmental consequences of the Base Plus Prather Alternative, Base Only Alternative, and No Action Alternative, based on the detailed impact analyses presented in Chapter 4.

As detailed in Table 2-4, this EA concludes that implementing the WINDO projects described in Table 1-1 would not result in significant impacts to the environment. However, the Prather project will not be implemented until further evaluated, based on public input for this action. As funding becomes available, each project would be reviewed by the 49 CES/CEV (Environmental Flight) prior to implementation to ensure that there has not been a substantive change in the base mission, project scope, environmental conditions, or environmental regulations that would warrant re-evaluation of potential environmental consequences. Should there be a substantive change in scope, conditions, or regulations, a separate EIAP would be prepared.

**Table 2-4. Summary of Potential Environmental Consequences of Implementation
of the Holloman WINDO**

<i>Resource</i>	<i>Base Plus Prather Alternative</i>	<i>Base Only Alternative (preferred)</i>	<i>No Action</i>
Physical Resources (Water and Soils)	Temporary disturbance of 302 acres of soils (292 acres on base and 10 acres off base); impacts avoided or minimized using proper construction techniques and best management practices (BMPs), erosion control measures, and structural engineering designs incorporated. Holloman Air Force Base (AFB) to obtain coverage under Multi-Purpose General Permit for Industrial Activities for storm water. Construction would increase amount of impervious surface by 39 acres. After construction, update Storm Water Pollution Prevention Plan for each project. Section 404/401 permit would be obtained from United States Army Corp of Engineers and State of New Mexico for potential loss of 11 acres of wetland. The open storm drain realignment option would slightly offset impacts to wetlands. No significant impact with implementation of permit conditions. No designated 100-year floodplains in the project area; therefore, no impact. BMPs would prevent sedimentation and impacts on water quality.	Temporary disturbance of 292 acres of soils; impacts avoided or minimized using proper construction techniques, erosion control measures, and structural engineering designs incorporated. Holloman AFB to obtain coverage under National Pollutant Discharge Elimination System Multi-Sector General Permit for Industrial Activities for storm water. Construction would increase amount of impervious surface by 39 acres. After construction, update Storm Water Pollution Prevention Plan for each project. Section 404/401 permit would be obtained from United States Army Corp of Engineers and State of New Mexico for potential loss of 11 acres of wetland. The open storm drain realignment option would slightly offset impacts to wetlands. With implementation of permit conditions, if required, no significant impact. No designated 100-year floodplains in the project area; therefore, no impact.	No changes to water resources would occur; no impact expected. No changes to soils would occur; no impact expected.

2.0 Description of Alternatives

<i>Resource</i>	<i>Base Plus Prather Alternative</i>	<i>Base Only Alternative (preferred)</i>	<i>No Action</i>
Biological Resources	Minor impacts to vegetation, wildlife and migratory birds. Minor impacts from loss of 11 acres of wetlands and associated wildlife may be offset by increased storm water in some open ditches. No impact to sensitive or protected species expected. Risk for bird-aircraft strike hazard in Clear Zone (CZ) area decreases slightly. No impacts to biological species along Prather water main; invasive weed controls implemented for disturbed areas.	Minor impacts to vegetation, wildlife and migratory birds. Minor impacts from loss of 11 acres of wetlands and associated wildlife may be offset by increased storm water in some open ditches. No impact to sensitive or protected species expected. Risk for bird-aircraft strike hazard in CZ area decreases slightly.	No changes to biological resources would occur; no impact expected.
Air Quality	Combustion engines and fugitive dust emissions would produce localized, short-term elevated air pollutant concentrations, ranging from 2 to 14 percent increase over current annual emissions for criteria pollutants, which would not result in any long-term impacts on air quality.	Combustion engines and fugitive dust emissions on-base would produce localized, short-term elevated air pollutant concentrations, ranging from 2 to 14 percent increase over current annual emissions for criteria pollutants, which would not result in any long-term impacts on air quality. No off-base construction	No changes to air quality would occur; no impact expected.
Noise	Construction noise would be intermittent and short term. No long-term noise impacts would result. New facilities generally compatible with noise compatibility guidelines. Some functional areas in large buildings may need noise level reduction construction. Temporary noise along Hamilton Road during construction period.	On-base construction noise would be intermittent and short term. No long-term noise impacts would result. New facilities generally compatible with noise compatibility guidelines. Some functional areas in large buildings may need noise level reduction construction. No off-base noise generation.	No changes to current noise levels would occur; no impact expected.

Resource	Base Plus Prather Alternative	Base Only Alternative (preferred)	No Action
Land Use Resources	Proposed construction projects compatible with Holloman AFB planning; portions of some new facilities may need noise level reduction construction to reduce interior noise levels; some existing incompatible land uses and safety concerns would be corrected; construction and demolition vehicles would generate short-term increases in local traffic (on base and Hamilton Road); effects on residential areas in Alamogordo from Prather water main project would be temporary.	Proposed construction projects compatible with Holloman AFB planning; portions of some new facilities may need noise level reduction construction to reduce interior noise levels; some existing incompatible land uses and safety concerns would be corrected; construction and demolition vehicles would generate short-term on-base increases in local traffic.	No changes to land use or transportation would occur; some land use compatibility issues would remain.
Socioeconomics and Environmental Justice	No long-term change in base employment or expenditures; no change in minority population; no impact expected.	No long-term change in base employment or expenditures; no change in minority population; no impact expected.	No change in Holloman AFB employment or expenditures; no change in minority population; no impact expected.
Cultural Resources	No cultural or historic resources affected by action; no impact expected.	No cultural or historic resources affected by action; no impact expected.	No change in cultural resources would occur; no impact expected.
Safety	New quantity-distance arc compatible with surrounding open space and airfield; improved safety of airfield from removing obstructions in airfield CZs; new fire stations provide improved emergency response; beneficial impact for safety.	New quantity-distance arc compatible with surrounding open space and airfield; improved safety of airfield from removing obstructions in airfield CZs; new fire stations provide improved emergency response; beneficial impact for safety.	No change in safety conditions would occur; some safety issues would be unaddressed.

2.0 Description of Alternatives

<i>Resource</i>	<i>Base Plus Prather Alternative</i>	<i>Base Only Alternative (preferred)</i>	<i>No Action</i>
Hazardous Materials and Waste Management	Hazardous materials and construction debris would be handled, stored and disposed of in accordance with applicable regulations; any asbestos containing material, lead-based paint or contaminated soil associated with Environmental Restoration Program sites encountered would be removed and disposed of properly; no impact expected.	Hazardous materials and construction debris would be handled, stored and disposed of in accordance with applicable regulations; any on-base asbestos containing material, lead-based paint or contaminated soil associated with Environmental Restoration Program sites encountered would be removed and disposed of properly; no off-base construction wastes generated; no impact expected.	No change in hazardous materials and wastes would occur; no impact expected.
Infrastructure	Proposed construction would lead to small increases in utility demands; local and regional water assessment underway but current available water supply and distribution system able to meet 14 percent increase in water demand on Holloman AFB; new water pipeline improves reliability of water supply to base; construction and demolition waste would be recycled or landfilled; regional landfills have capacity for projected demolition waste; proposed projects would improve certain base infrastructure and utilities systems; no significant impacts to infrastructure.	Proposed construction would lead to small increases in utility demands; local and regional water assessment underway but current available water supply and able to meet 14 percent increase in water demand on Holloman AFB; increased maintenance on Prather water main anticipated to maintain adequate future delivery of water to the base; construction and demolition waste would be recycled or landfilled; regional landfills have capacity for projected demolition waste; proposed projects would improve certain base infrastructure and utilities systems; no significant impacts to infrastructure.	No change in infrastructure would occur; some mission requirements would be unmet due to dilapidated and inefficient facilities; identified utilities upgrades would not occur; and could result in interruptions to water supply that may require intermittent reallocation of water between on-base uses.

3.0 AFFECTED ENVIRONMENT

Chapter 3 describes the existing, or baseline, environmental and socioeconomic conditions most likely to be impacted by the alternatives. These resources and conditions include: physical resources, biological resources, air quality, noise, land use and transportation, socioeconomics and environmental justice, cultural resources, safety, hazardous materials and waste, and infrastructure. Chapter 4 describes the actual potential environmental and socioeconomic impacts of implementing the Base Plus Prather Alternative, Base Only Alternative, and No Action Alternative. Airspace Management is not evaluated since the WINDO projects would not alter aircraft operations at Holloman AFB. Visual resources are not addressed since the projects on Holloman AFB do not affect surrounding off-base areas, and the Prather water line would be placed underground and not change visual conditions following the installation.

3.1 PHYSICAL RESOURCES (SOILS AND WATER)

3.1.1 Definition of the Resource

Physical resources, all of which are interrelated, include topography, geology, soils, and water. Topography characterizes the landscape in the area and provides a description of the physical setting. Geologic resources typically consist of subsurface rock, occasionally visible at the ground surface. The inherent properties of local bedrock affect soil formation, groundwater sources and availability, and terrain. Soils are the unconsolidated materials formed from the underlying bedrock or other parent material. Soils play a critical role in both the natural and human environment, affecting vegetation growth, water and air quality, and the success of the construction and stability of roads, buildings, and shallow excavations. Water resources address the quality and quantity of surface water (e.g., lakes, rivers, and streams), and groundwater, (including aquifers used for domestic purposes) and other water tables in the region. These resources may have scientific, historical, economic, and recreational value.

The region of influence (ROI) for physical resources in this EA includes the land within the boundaries of Holloman AFB and land along the Prather water main. This region also includes water channels and areas downstream from project sites. The descriptions of topography and geology, described in a regional context, depict the setting. The soil and water resource information provided is site-specific, focusing on those properties most likely to be affected by, or to have an effect on, construction of the proposed facilities.

Typically, issues relevant to water resources include the quality and quantity of downstream water bodies that could be affected and hazards associated with 100-year floodplains delineated in accordance with EO 11988, *Floodplain Management*. There are no designated 100-year floodplains in the project area. Any potential modifications to wetlands are addressed in accordance with EO 11990, *Protection of Wetlands*, which regulates development activities in or near streams.

3.1.2 Existing Conditions

3.1.2.1 Regional Setting

Holloman AFB is located within Major Land Resource Area 42 (the Southern Desertic Basins, Plains, and Mountains) and the Subresource Area SD-2. These groupings are based on a national system that delineates generalized regions sharing recognizable associations of soils, vegetation, hydrology, and other similar land features (SCS 1980).

Subresource Area SD-2 includes the majority of the Tularosa Basin, a closed basin that is part of the Rio Grande rift. In the Tularosa Basin, surface water can only escape through infiltration or evaporation. Much of this area is underlain by limestone and gypsum; sand dunes composed primarily of gypsum are prominent. The area ranges between 3,800 and 5,200 feet above mean sea level (msl) and is characterized by gently sloping plains broken by the Rio Grande to the west, the Sacramento Mountains to the east, and the San Andres Mountains to the west (SCS 1980).

The predominant soils, typical of areas with low precipitation, have little soil horizon development, high pH, and are susceptible to wind and water erosion. The soil temperature regime is thermic, having a mean annual temperature between 59 degrees Fahrenheit (°F) and 72°F; the soil moisture regime is aridic (dry) (SCS 1980).

The primary aquifer consists of alluvial deposits that are very thick and very saline in the center of the Tularosa Basin; the best sources for fresh, potable groundwater are located around the edges of the basin. Tularosa Basin water has been extensively developed to provide water for drinking and irrigation (NMWQCC 2002).

3.1.2.2 Physical Resources on Holloman AFB

The terrain at Holloman AFB is nearly level to gently sloping toward the southwest. Elevations range from 4,028 to 4,100 feet above msl. The base is crossed by several arroyos that flow intermittently, primarily with storm water runoff. These arroyos include Lost River, Dillard Draw, Malone Draw, and several smaller tributaries. The arroyos generally drain in the southwest direction. Lost River is supplied by surface water flows, seeps, and springs (HAFB 2001). Flows in many of the surface water drainages sink into the permeable soils or limestone before water reaches their outlets.

Within the combined project area (see Figure 2-1), the predominant soil map unit is Holloman-Gypsum land-Yesum complex, with 0 to 5 percent slopes. This complex is composed of soils that are shallow, intermingled with deep, well-drained soils and areas of exposed gypsum. In general, soil permeability is moderate, the available water-holding capacity is low, and the soils are very susceptible to wind erosion where the surface is bare. Because vegetation is not productive on these soils, blowing dust from bare soil is common. These soils provide poor quality roadfill material and have moderate to severe limitations for construction of buildings due to low soil strength and the shallow depth to bedrock, although the rock is soft enough to be rippable. For these sites, there is a high risk of corrosion of buried, uncoated steel and concrete (SCS 1981).

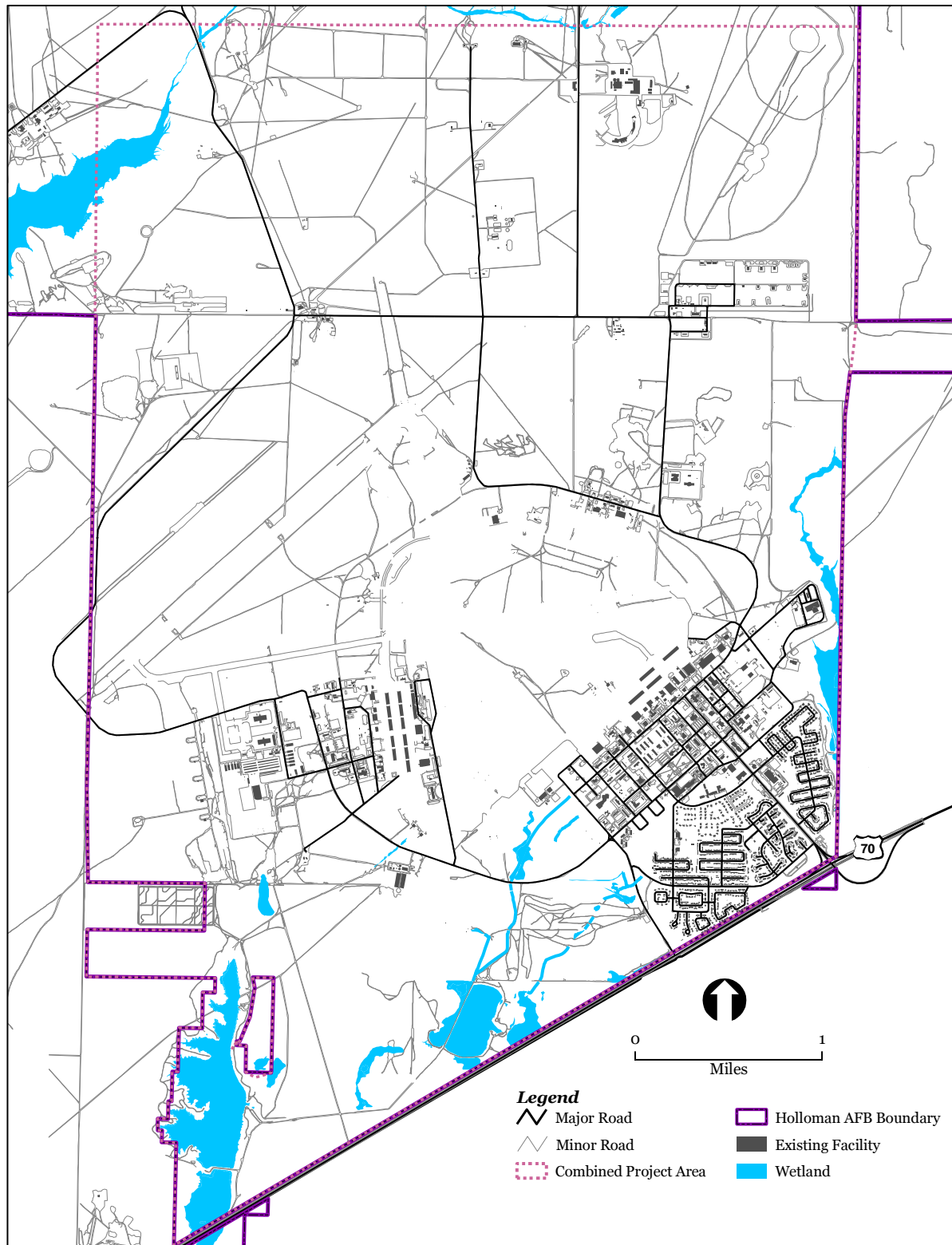
According to Section 328.3 of 33 CFR 328, wetlands are “those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.” Waters of the U.S. are defined in the same section of the law as “All other waters such as lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce” (USACE 2002).

There are approximately 780 acres of delineated wetlands on Holloman AFB, of which almost 450 acres are within the combined project area (**Figure 3-1**). While there are no perennial streams on Holloman AFB, there are Waters of the U.S. that receive storm water discharges from the base including Lake Holloman, Dillard Draw, Ritas Draw, and Lost River (HAFB 2001). Ritas Draw flows into Lost River, which sinks into the sand dunes of White Sands National Monument. Flows that reach Dillard Draw and Lake Holloman either infiltrate the soil or evaporate.

Surface water runoff is handled through a storm water system consisting of a combination of swales, inlets, culverts, and pipes that currently have adequate capacity to handle flows. Pollutants in storm water discharges from specified industrial areas are managed in compliance with NPDES requirements under a program administered by the EPA to address industrial activities. Holloman AFB has an approved Stormwater Pollution Prevention Plan (SWPPP) that meets the requirements of the base-wide NPDES Multi-Sector General Permit for Industrial Activities (HAFB 2001).

Small construction activity that disturbs an area of one acre or larger must comply with the EPA Phase II Stormwater General Permit for Small Construction. Compliance with the permit is intended to improve or maintain water quality by minimizing pollutants in storm water runoff that is discharged into the drainage system. It requires issuance of a Notice of Intent, development and implementation of a site-specific SWPPP and an erosion and sediment control plan, and maintenance of control measures. The SWPPP and erosion and sediment control plan includes temporary and permanent stabilization of disturbed areas and the installation and maintenance of BMPs. The Stormwater General Permit for Small Construction requirement may be waived during periods of low rainfall (generally September through June at Holloman AFB) by calculating the Rainfall Erosivity Factor to determine whether the potential for polluted discharge is low enough to justify a waiver (EPA 2001).

During development of the SWPPP, site evaluations of facilities were conducted to ensure that materials handling and pollution prevention procedures are adequate to ensure that there will be no contamination of surface water or groundwater due to activities on the base. BMPs are described in the SWPPP to provide guidance to minimize adverse effects on water quality. Annual monitoring and assessment of potential storm water pollution sources is required under the Stormwater General Permit for Small Construction.



Note: AFB = Air Force Base
 Sources: HAFB n.d. a,c,d,f,g

Figure 3-1. Location of Wetlands in Combined Project Area on Holloman AFB

3.1.2.3 Physical Resources along Prather Water Main

The terrain along Prather water main is nearly level to gently sloping toward the southwest. Elevations range from 4,100 to 4,200 feet above msl. The water line is adjacent to the downstream ends of two unnamed arroyos that handle storm water runoff but do not outlet into other water bodies. No wetlands or other Waters of the U.S. are located within the right-of-way of the Prather main line proposed for replacement.

There are four soil map units along the water line, all of which are deep, well-drained, and calcareous (SCS 1981). The soil map unit names and some properties relevant to construction and maintenance of the water line are included in **Table 3-1**. Available water capacity and erosion hazard are included for consideration when planning for site stabilization and revegetation once construction is completed.

Table 3-1. Selected Soil Properties along Prather Water Main

<i>Soil Map Unit</i>	<i>Available Water Capacity</i>	<i>Erosion Hazard</i>		<i>Limitation for Shallow Excavations</i>	<i>Risk of Corrosion</i>	
		<i>Wind</i>	<i>Water</i>		<i>Concrete</i>	<i>Uncoated Steel</i>
Aztec gravelly fine sandy loam, 3-12 percent slopes	Low	Slight	Slight	Severe (small stones)	High	High
Tome-Emot Complex, 0-3 percent slopes ¹	High–Moderate	Severe–Severe	Severe–Moderate	Slight–Severe (small stones)	Low–Low	High–Moderate
Tome silt loam, frequent overflow, 1-3 percent slopes	High	Severe	Severe	Moderate	Low	High
Tome very fine sandy loam, 0-1 percent slopes	High	Severe	Severe	Slight	Low	High

Notes: ¹ Soil properties are listed separately for Tome and Emot soils (in this order and separated by a dash), which comprise the majority of this complex. Although these two soil types have distinctly different properties, they were not mapped separately. As a result, either or both may exist on the site.

Source: SCS 1981

3.2 BIOLOGICAL RESOURCES

Biological resources consist of native or naturalized plants and animals, along with their habitats, including wetlands. Although the existence and preservation of biological resources are both intrinsically valuable, these resources also provide essential aesthetic, recreational, and socioeconomic benefits to society. This section focuses on plant and animal species and vegetation types that are important to the functioning of local ecosystems, are of special societal importance, or are protected under federal or state law or statute.

3.2.1 Terrestrial Communities

3.2.1.1 Plants

Holloman AFB is located in Bailey's (1995) Chihuahuan Desert Province, which is dominated by thorny shrubs. Overall, creosote bush (*Larrea tridentata*) is the most widespread and abundant plant in the province, especially on gravel fans. On deep soils, however, honey mesquite

(*Prosopis glandulosa*) becomes the dominant plant, and cacti are also abundant, particularly prickly pears (*Opuntia* spp.). Other plants that are common to abundant in the Chihuahuan Desert Province include yuccas (*Yucca* spp.), lechuguilla (*Agave lechuguilla*), and ocotillo (*Fouquieria splendens*) (Bailey 1995). Soils along rivers support some trees including cottonwoods (*Populus* spp.).

In the combined project area, much of the original vegetation has been replaced by ornamental plants and shade trees, such as desert willow (*Chilopsis linearis*), ocotillo, yuccas, pines (*Pinus* spp.), and mulberry (*Morus* sp.). The installation has a golf course, and lawns flank some of the residential buildings. Away from buildings and roads, the vegetation tends to be dominated by four-wing saltbush (*Atriplex canescens*) and patches of sacaton (*Sporobolus* spp.), with also some areas of saltgrass (*Distichlis* spp.). Cryptogamic crusts are present. On disturbed soils, the vegetation may consist largely of silverleaf nightshade (*Solanum elaeagnifolium*), Russian thistle (*Salsola iberica*), or African rue (*Peganum harmala*). African rue in particular is invasive and the focus of local management efforts aimed at preventing its spread. Some areas have alkaline soils that support little or no vegetation.

3.2.1.2 Wildlife

The fauna of the Chihuahuan Desert Province includes pronghorn (*Antilocapra americana*) and mule deer (*Odocoileus hemionus*) as the most widely distributed large game animals (Bailey 1995). Lagomorphs are represented by the blacktail jackrabbit (*Lepus californicus*) and the desert cottontail (*Sylvilagus audubonii*); kangaroo rats (*Dipodomys* spp.) and woodrats (*Neotoma* spp.) are some of numerous rodents competing with domestic and wild herbivores for forage. The coyote (*Canis latrans*) and the bobcat (*Lynx rufus*) are two of the mammalian predators present in the province (Bailey 1995).

The black-throated sparrow (*Amphispiza bilineata*) is one of the most abundant birds of the Chihuahuan Desert Province. The greater roadrunner (*Geococcyx californianus*), curve-billed thrasher (*Toxostoma curvirostre*), and Chihuahuan raven (*Corvus cryptoleucus*) are also common, as are the scaled quail (*Callipepla squamata*) and Gambel's quail (*Callipepla gambellii*). Some of the raptors that occur in the province are the golden eagle (*Aquila chrysaetos*), great horned owl (*Bubo virginianus*), red-tailed hawk (*Buteo jamaicensis*), and ferruginous hawk (*B. regalis*). The Chihuahuan Desert Province harbors a large number of reptile species including the common chuckwalla (*Sauromalus ater*), Texas horned lizard (*Phrynosoma cornutum*), desert spiny lizard (*Sceloporus magister*), and various rattlesnakes (Bailey 1995).

In the combined project area, great-tailed grackles (*Quiscalus mexicanus*) are present near buildings, while desert cottontails and Gambel's quails frequent the golf course. Some common terrestrial birds of the general area include the western kingbird (*Tyrannus verticalis*), Cassin's kingbird (*T. vociferans*), and Say's phoebe (*Sayornis saya*). Swainson's hawks (*Buteo swainsoni*), red-tailed hawks, and Chihuahuan ravens nest locally. Juvenile northern harriers (*Circus cyaneus*) have been observed on the military installation, although there is no nesting record for this species at Holloman AFB. Characteristic reptiles include checkered whiptails (*Cnemidophorus tesselatus*), bullsnakes (*Pituophis melanoleucus*), and prairie (or western)

rattlesnake (*Crotalis viridis*) and western diamondback rattlesnake (*Crotalis atrox*). The Texas horned lizard occurs only occasionally in the area.

Although currently not an important cause of bird mortality, collisions between birds and airplanes do occur at Holloman AFB. A total of 15 bird strikes were documented in 2003 and 20 in 2004 (Dye 2005).

3.2.2 Wetlands and Freshwater Aquatic Communities

Section 404 of the CWA established a program to regulate the discharge of dredged and fill material into Waters of the U.S., including wetlands. Activities in Waters of the U.S. that are regulated under this program include fills for development, water resource projects (such as dams and levees), infrastructure development (such as highways and airports), and conversion of wetlands to uplands for farming and forestry. The federal regulations implementing Section 404 of the CWA define wetlands as quoted in the Physical Resource section above. EO 11990, Protection of Wetlands, requires federal agencies, including the Air Force, to minimize the destruction, loss, or degradation of wetlands, and to preserve and enhance the natural and beneficial values of wetlands.

Of 780 acres of wetland on Holloman AFB, there are about 450 acres of wetlands in the project area, primarily to the north and west of the golf course. Some of these wetlands consist of ponds and sections of open ditches with cattail (*Typha* sp.) and bulrush (*Scirpus* sp.). Along the section of the ditch to be closed, the vegetation is dominated by saltcedar (*Tamarix ramossissima*), while the ditch along the Prather water main is lined with some vegetation that includes saltbush, silverleaf nightshade, Russian thistle, globe mallow (*Sphaeralcea* spp.), buffalo gourd (*Cucurbita foetidissima*), saltcedar, desert willow, creosote bush, and common reed (*Phragmites australis*). Neither ditch has permanent water.

American coots (*Fulica americana*) and ruddy ducks (*Oxyura jamaicensis*) may be observed in a small pond adjacent to the golf course; teals (*Anas* spp.) have been documented nesting along a ditch with bulrush and cattail vegetation. Aquatic birds observed during the winter in wetlands of the project area include the northern shoveler (*Anas clypeata*) and the American avocet (*Recurvirostra americana*). These species are observed in areas with permanent surface water.

There are no fish species in the project area.

3.2.3 Threatened and Endangered and Special Status Species

For purposes of this assessment, sensitive biological resources are defined as those plant and animal species listed as threatened or endangered by the USFWS and species that are listed for conservation-related reasons by the State of New Mexico or other relevant entities. Three categories of protection status are included in this section: (1) federally listed threatened and endangered species; (2) state listed species; and (3) other sensitive species.

Federally Listed Threatened and Endangered Species. The ESA of 1973 provides protection to species federally listed as endangered or threatened. Endangered species are those species that are at risk of extinction in all or a significant portion of their range. Threatened species are those that could be listed as endangered in the near future.

State Listed Wildlife and Plants. The State of New Mexico maintains its own list of state endangered, threatened, and sensitive wildlife species.

Other Sensitive Species. Taxa under this heading receive no legal protection under the ESA. They include federally proposed endangered species, proposed threatened species, and species of concern. Federally-listed proposed endangered and threatened species are those proposed to be listed as endangered and threatened, respectively (formal ruling in progress). Federal species of concern (formerly labeled as candidate species) are those for which the USFWS has on file sufficient information on biological vulnerability and threats to support proposals to list them as endangered or threatened, but issuance of proposed rules for these species is precluded by higher priority listing actions.

Other sensitive species at the federal level also include birds of conservation concern, defined as those migratory, nongame avian species in greatest need of conservation action at different geographic scales. EO 13186, *Responsibilities of Federal Agencies to Protect Migratory Birds* (2001) recognizes the ecological and economic importance of migratory birds to this and other countries. It requires federal agencies to evaluate the effects of their actions and plans on migratory birds (with an emphasis on species of concern) in their NEPA documents. Listing among the federal Birds of Conservation Concern confers no legal protection independent of protection that is afforded under the Migratory Bird Treaty Act or other legislation.

Other sensitive species finally also include those identified by the New Mexico Natural Heritage Program as species critically imperiled globally or at the state level, irrespective of whether they are listed under any of the federal designations described above. **Table 3-2** lists threatened and endangered plant and animal species on or in close proximity to Holloman AFB. No breeding has been documented at Holloman AFB for any of these species.

Table 3-2. Threatened and Endangered Species in Vicinity of Holloman WINDO Projects

<i>Common Name</i>	<i>Scientific Name</i>	<i>Status</i>	<i>Potential for occurrence</i>
Mammals			
Western small-footed myotis bat	<i>Myotis ciliolabrum melanorhinus</i>	SS, FSC	Present on Holloman Air Force Base (HAFB); very unlikely to occur in combined project area based on habitat associations
Spotted bat	<i>Euderma maculatum</i>	ST, FSC	Present on HAFB; very unlikely to occur in project area based on habitat associations
Townsend's big-eared bat	<i>Plecotus townsendii</i>	SS, FSC	Present on HAFB; very unlikely to occur in project area based on habitat associations

<i>Common Name</i>	<i>Scientific Name</i>	<i>Status</i>	<i>Potential for occurrence</i>
Big free-tailed bat	<i>Nyctinomops macrotis</i>	SS, FSC	Possibly present on HAFB; very unlikely to occur in project area based on habitat associations
Rock squirrel	<i>Spermophilus variegatus tularosae</i>	SS	Present on HAFB
Black-tailed prairie dog	<i>Cynomys ludovicianus</i>	SS	Unlikely to be present on HAFB; not recorded in project area
Botta's pocket gopher	<i>Thomomys bottae tularosae</i>	SS	Possibly present on HAFB
Desert pocket gopher	<i>Geomys arenarius</i>	SS, FSC	Possibly present on HAFB
Plains pocket mouse	<i>Perognathus flavesceus gypsi</i>	SS	Present on HAFB
Ringtail	<i>Bassariscus astutus</i>	SS	Present on HAFB
Western spotted skunk	<i>Spilogale gracilis</i>	SS	Possibly present on HAFB
Common hog-nosed skunk	<i>Conepatus mesoleucus</i>	SS	Possibly present on HAFB
Birds			
Brown pelican	<i>Pelecanus occidentalis</i>	SE, FE	Accidental occurrence on HAFB (only one record)
Neotropic cormorant	<i>Phalacrocorax brasilianus</i>	ST	Present on HAFB
White-faced ibis	<i>Plegadis chihi</i>	SS	Present on HAFB
Northern harrier	<i>Circus cyaneus</i>	FBCC	Present on HAFB
Northern gray hawk	<i>Asturina nitida maximus</i>	SS, FSC	Present on HAFB
Ferruginous hawk	<i>Buteo regalis</i>	FSC, FBCC	Documented only once on HAFB, in gypgrass-four winged saltbush habitat; very unlikely to occur in project area based on habitat associations and level of human disturbance
Common black hawk	<i>Buteogallus anthracinus</i>	ST	Unlikely to be present on HAFB, as this species prefers riparian gallery forests, a habitat type not present locally

<i>Common Name</i>	<i>Scientific Name</i>	<i>Status</i>	<i>Potential for occurrence</i>
Bald eagle	<i>Haliaeetus leucocephalus</i>	ST, FT	Present on HAFB; very unlikely in project area due to the absence of river, lake, or very tall tree
American peregrine falcon	<i>Falco peregrinus anatum</i>	ST	Present on HAFB (documented at Lake Holloman); occurrence in project area is possible
Northern aplomado falcon	<i>Falco femoralis septentrionalis</i>	SE, FE	Present on HAFB; occurrence in project area is possible (has been documented about 3-5 miles to the north)
Snowy plover	<i>Charadrius alexandrinus</i>	FE, FBCC	Present on HAFB; occurrence in project area is possible
Mountain plover	<i>Charadrius montanus</i>	SS	Present on HAFB
Long-billed curlew	<i>Numenius americanus</i>	FBCC	Present on HAFB
Interior least tern	<i>Sterna antillarum athalassos</i>	SE, FE	Present on HAFB
Black tern	<i>Chlidonias niger</i>	FSC	Present on HAFB
Western burrowing owl	<i>Athene cunicularia hypugaea</i>	FSC, FBCC	Present on HAFB, where nesting has been documented in the past; not documented in project area
Costa's hummingbird	<i>Calypte costae</i>	ST	Present on HAFB
Crissal thrasher	<i>Toxostoma crissale</i>	FBCC	Present on HAFB
Southwestern willow flycatcher	<i>Empidonax traillii extimus</i>	SE, FE	Unlikely to be present on HAFB
Loggerhead shrike	<i>Lanius ludovicianus</i>	FSC, FBCC	Present on HAFB
Bell's vireo	<i>Vireo bellii</i>	ST, FBCC	Unlikely to be present on HAFB
Gray vireo	<i>Vireo vicinior</i>	ST, FBCC	Possibly present on HAFB
Sprague's pipit	<i>Anthus spragueii</i>	FBCC	Present on HAFB
Cassin's sparrow	<i>Aimophila cassinii</i>	FBCC	Present on HAFB
Sage sparrow	<i>Amphispiza belli</i>	FBCC	Present on HAFB
Lark bunting	<i>Calamospiza melanocorys</i>	FBCC	Present on HAFB

<i>Common Name</i>	<i>Scientific Name</i>	<i>Status</i>	<i>Potential for occurrence</i>
Baird's sparrow	<i>Ammodramus bairdii</i>	ST, SSC, FBCC	Present on HAFB
McCown's longspur	<i>Calcarius mccownii</i>	FBCC	Present on HAFB
Chestnut-collared longspur	<i>Calcarius ornatus</i>	FBCC	Present on HAFB
Reptiles			
Little white whiptail	<i>Cnemidophorus gypsi</i>	SS	Likely present on HAFB
Bleached earless lizard	<i>Holbrookia maculate ruthveni</i>	SS	Likely present on HAFB
Texas horned lizard	<i>Phrynosoma cornutum</i>	FSC	Present on HAFB; occasional in project area
White Sands prairie lizard	<i>Sceloporus undulates cowlesi</i>	SS	Likely present on HAFB
Fish			
White Sands pupfish	<i>Cyprinodon tularosa</i>	ST	Present on HAFB but not in project area
Plants and Lichen			
Sacramento prickly poppy	<i>Argemone pleiacantha pinnatisecta</i>	SE, FE	Possibly present on HAFB
Kuenzler's hedgehog cactus	<i>Echinocereus fendleri kuenzleri</i>	TE, SE	Unlikely to be present on HAFB
Villard pincushion cactus	<i>Escobaria villardii</i>	SE, FSC	Possibly present on HAFB
Night-blooming cereus	<i>Peniocereus greggii</i>	SE, FSC	Possibly present on HAFB
Paperspine fishhook cactus	<i>Sclerocactus papyracanthus</i>	SS, FSC	Present on HAFB
Alamo beardtongue	<i>Penstemon alamosensis</i>	SS, FSC	Possibly present on HAFB
Gypsophyllous lichen	<i>Acarospora clauzadeana</i>	GI/SI	Present on HAFB

FBCC = Federal Birds of Conservation Concern; FE = Federal Endangered; FSC = Federal Species of Concern; FT = Federal Threatened; GI/SI = Critically imperiled globally/In-state because of extreme rarity; SE = State Endangered; SS = State Sensitive; ST = State Threatened. See text for information on Federal Birds of Conservation Concern.

Source: HAFB 1998a

3.3 AIR QUALITY

3.3.1 Definition of Resource

This section discusses air quality considerations and conditions at Holloman AFB in Otero County, New Mexico. It addresses air quality standards and describes current air quality conditions in the region.

Federal Air Quality Standards. Air quality in a given location is determined by the type and concentration of pollutants in the atmosphere. The significance of a pollutant concentration in a region or geographical area is determined by comparing it to federal and/or state ambient air quality standards. Under the authority of the CAA, the EPA has established NAAQS to protect public health and welfare, with an adequate margin of safety.

The NAAQS represent the maximum allowable atmospheric concentrations of six criteria pollutants: O₃, NO₂, CO, respirable particulate matter less than 10 micrometers in diameter (PM₁₀), SO₂, and Pb. The NAAQS are defined in terms of concentration (e.g., parts per million [ppm] or micrograms per cubic meter [µg/m³]) determined over various periods of time (averaging periods). Short-term standards (1-hour, 8-hour, or 24-hour periods) were established for pollutants with acute health effects and may not be exceeded more than once a year. Long-term standards (annual periods) were established for pollutants with chronic health effects and may never be exceeded.

Based on measured ambient criteria pollutant data, the EPA designates areas of the U.S. as having air quality equal to or better than the NAAQS (attainment) or worse than the NAAQS (nonattainment). Nonattainment regions, upon achieving attainment, are considered to be maintenance areas for a period of 10 or more years. Areas are designated as unclassifiable for a pollutant when there is insufficient local ambient air quality data for the EPA to form a basis for an attainment designation. For the purpose of applying air quality regulations, unclassifiable areas are treated similar to areas that are in attainment of the NAAQS.

On April 15, 2004, the EPA promulgated attainment designations for the newly established 8-hour O₃ standard effective as of June 15, 2004. The EPA will revoke the 1-hour O₃ standard in June 2005 (EPA 2004a). On December 17, 2004, the EPA designated areas as attainment or nonattainment for the newly developed standard for particulates less than 2.5 micrometer in diameter (PM_{2.5}), which are fine particulates that have not been previously regulated (EPA, 2004b).

State Air Quality Standards. Under the CAA, state and local agencies may establish Ambient Air Quality Standards (AAQS) and regulations of their own, provided these are at least as stringent as the federal requirements. For selected criteria pollutants, the State of New Mexico has established its AAQS (NMAC 2002). New Mexico standards are equivalent to the NAAQS for PM₁₀, O₃, and Pb. New Mexico AAQS are more restrictive than federal standards for CO, NO₂, and SO₂. In addition, New Mexico regulates emissions of total suspended particulates (TSP), hydrogen sulfide (H₂S), and total reduced sulfur, three pollutants for which there are no federal standards. The New Mexico AAQS are not intended to provide a sharp dividing line between satisfactory and unsatisfactory air quality. They are, however, numbers that represent

objectives that will preserve the state's air resources (ACC 2004A). A summary of the federal and New Mexico ambient air quality standards that apply to the proposed project area is presented in **Table 3-3**.

Table 3-3. New Mexico and Federal Ambient Air Quality Standards

<i>Air Pollutant</i>	<i>Averaging Time</i>	<i>New Mexico Standards</i>	<i>Federal Standards</i>	
			<i>Primary</i>	<i>Secondary</i>
Carbon Monoxide (CO)	8-hour 1-hour	8.7 ppm 13.1 ppm	9 ppm 35 ppm	— —
Nitrogen Dioxide (NO ₂)	AAM 24-hour	0.05 ppm 0.10 ppm	0.053 ppm —	0.053 ppm —
Sulfur Dioxide (SO ₂)	AAM 24-hour 3-hour	0.02 ppm 0.10 ppm —	0.030 ppm 0.140 ppm —	— — 0.50 ppm
Particulate Matter (PM ₁₀)	AAM 24-hr	— —	50 µg/m ³ 150 µg/m ³	50 µg/m ³ 150 µg/m ³
Particulate Matter (PM _{2.5}) ^(a)	AAM 24-hour	— —	15 µg/m ³ 65 µg/m ³	15 µg/m ³ 65 µg/m ³
Total Suspended Particulates (TSP)	AGM 30-day 7-day 24-hr	60 µg/m ³ 90 µg/m ³ 110 µg/m ³ 150 µg/m ³	— — — —	— — — —
Hydrogen sulfide (H ₂ S)	1-hr ^(d)	0.010 ppm	—	—
Total Reduced Sulfur ^(b)	½-hr ^(d)	0.003 ppm	—	—
Ozone (O ₃) ^(c)	1-hour 8-hour	— —	0.12 ppm 0.08 ppm	0.12 ppm —
Lead (Pb)	3-month	—	1.5 µg/m ³	1.5 µg/m ³

AAM = Annual Arithmetic Mean; AGM = Annual Geometric Mean; µg/m³ = micrograms per cubic meter; ppm = parts per million

Notes: (a) The PM_{2.5} standard (particulate matter with a 2.5 µm diameter or smaller) were promulgated in January 2005. The standard will be implemented over the next few years.

(b) Total reduced sulfur does not include H₂S.

(c) The 8-hour O₃ standard will replace the 1-hour standard in June 2005, one year after the effective date of EPA's recent nonattainment designations. Meanwhile, the 1-hour O₃ standard will continue to apply to areas not attaining it.

(d) Entire state except for the Pecos-Permian Air Basin, which includes De Baca, Chaves, Curry, Quay, and Roosevelt Counties.

Sources: 40 CFR 50; NMAC 2002

State Implementation Plan. For nonattainment regions, individual states are required to develop a SIP designed to eliminate or reduce the severity and number of NAAQS violations, with an underlying goal to bring state air quality conditions into (and maintain) compliance with the NAAQS by specific deadlines. The SIP is the primary means for the implementation, maintenance, and enforcement of the measures needed to attain and maintain the NAAQS in each state.

Prevention of Significant Deterioration. Section 162 of the CAA further established the goal of prevention of significant deterioration (PSD) of air quality in all international parks; national parks that exceeded 6,000 acres; and national wilderness areas and memorial parks that exceeded 5,000 acres if these areas were in existence on August 7, 1977. These areas were defined as mandatory Class I areas, while all other attainment or unclassifiable areas were defined as Class II areas. Under CAA Section 164, states, tribal nations, and the federal government have the authority to redesignate certain areas as (nonmandatory) Class I areas (e.g., a National Park or wilderness area established after August 7, 1977). Class I areas (mandatory and nonmandatory) are those where any appreciable deterioration of air quality is considered significant. Class II areas are those where moderate, well-controlled growth could be permitted. Class III areas are those designated by the governor of a state as requiring less protection than Class II areas. No Class III areas have yet been so designated. The PSD requirements affect construction of new major stationary sources in the PSD Class I, II, and III areas and are a preconstruction permitting system.

Visibility. CAA Section 169A established the additional goal of prevention of further visibility impairment in PSD Class I areas. Visibility impairment is defined as atmospheric discoloration and a reduction in the visual range. Determination of the significance of an activity on visibility in a PSD Class I area is typically associated with evaluation of stationary source contributions. The EPA is implementing a Regional Haze rule for PSD Class I areas that will address contributions from mobile sources and pollution transported from other states or regions. Emission levels are used to qualitatively assess potential impairment to visibility in PSD Class I areas. Decreased visibility may potentially result from elevated concentrations of PM₁₀ and SO₂ in the lower atmosphere.

General Conformity. CAA Section 176(c), General Conformity, established certain statutory requirements for federal agencies with proposed federal activities to demonstrate conformity of the proposed activities with each SIP for attainment of the NAAQS. In 1993, EPA issued the final rules for determining air quality conformity. Federal activities must not:

- Cause or contribute to any new violation;
- Increase the frequency or severity of any existing violation; or
- Delay timely attainment of any standard, interim emission reductions, or milestones in conformity to a SIP's purpose of eliminating or reducing the severity and number of NAAQS violations or achieving attainment of NAAQS.

General conformity applies only to nonattainment and maintenance areas. If the emissions from a federal action proposed in a nonattainment area exceed annual thresholds identified in the rule, a conformity determination is required of that action. The thresholds become more restrictive as the severity of the nonattainment status of the region increases. The State of New Mexico Environmental Improvement Board has implemented the federal general conformity regulations in Title 20, Chapter 2, Part 98 of the state's Air Quality Regulations.

Stationary Source Operating Permits. In New Mexico, the New Mexico Air Quality Bureau (NMAQB) Permitting Section processes permit applications for industries that emit pollutants

into the air. The Permitting Section consists of two groups: (1) New Source Review (NSR); and (2) Title V. The NSR is responsible for issuing construction permits, technical and administrative revisions or modifications to existing permits, Notices of Intent for smaller industrial operations, and No Permit Required determinations. Construction Permits (under NSR) are required for all sources with the potential emission rate greater than 10 pounds per hour or 25 tons per year of criteria pollutants (e.g., NO₂ and CO). Air quality permits must be obtained for new or modified sources. Title V of the CAA Amendments of 1990 requires states to issue Federal Operating Permits for major stationary sources. A major stationary source in an attainment or maintenance area is a facility (e.g., plant, base) or an activity that emits more than 100 tons per year of any one criteria air pollutant; 10 tons per year of a hazardous air pollutant; or 25 tons per year of any combination of hazardous air pollutants. The purpose of the permitting rule is to establish regulatory control over large, industrial activities and to monitor their impact upon air quality (NMAQB 2003).

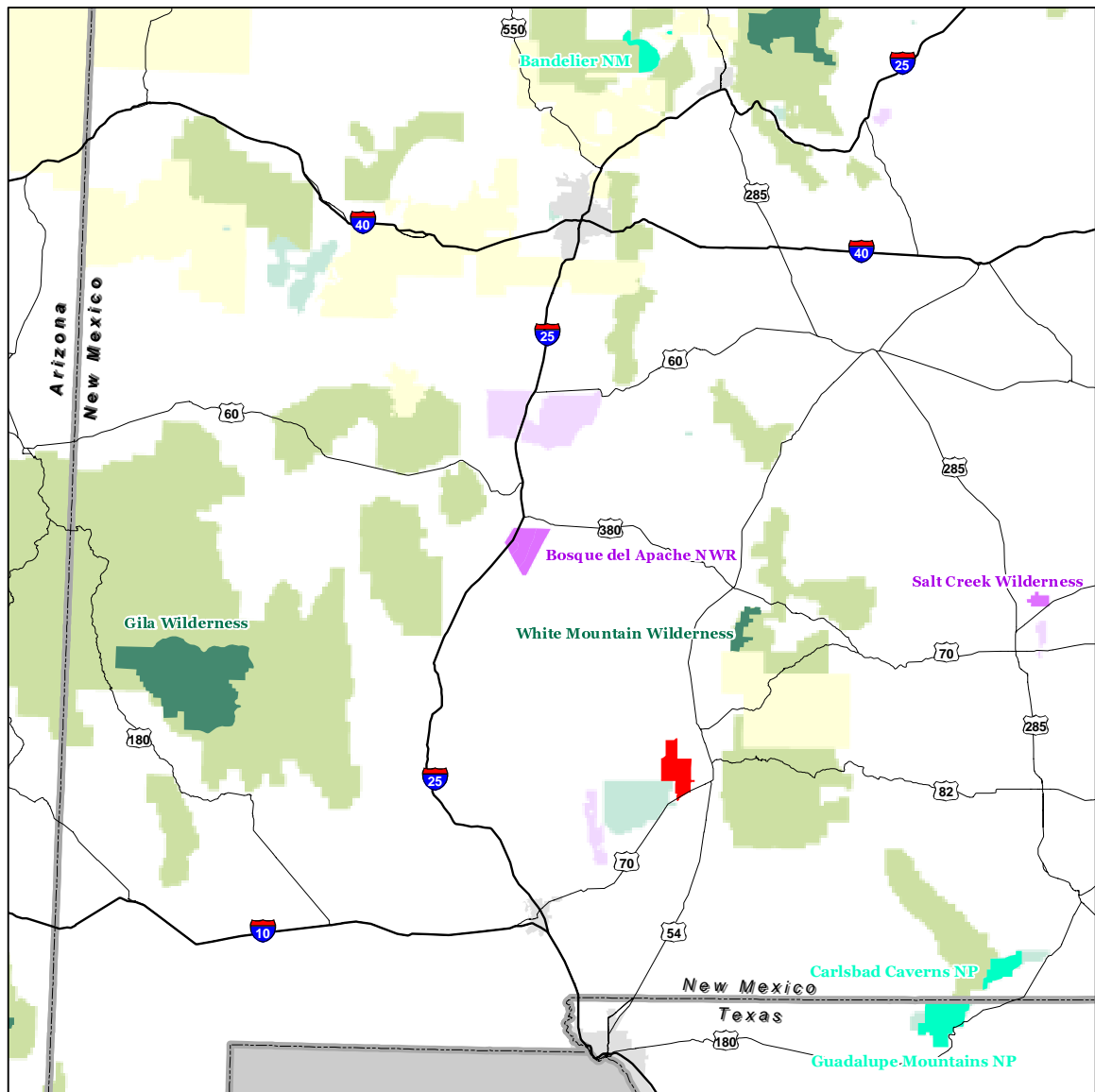
3.3.2 Existing Conditions

Regional Air Quality. Federal regulations at 40 CFR 81 delineate certain air quality control regions (AQCRs), which were originally designated based on population and topographic criteria closely approximating each air basin. The potential influence of emissions on regional air quality would typically be confined to the air basin in which the emissions occur. Therefore, the ROI for this action is the El Paso-Las Cruces-Alamogordo AQCR (AQCR 153), Doña Ana, Lincoln, Otero, and Sierra Counties in New Mexico and Brewster, Culberson, Hudspeth, Jeff Davis, and Presidio Counties in Texas (40 CFR 81.82).

Attainment Status. A review of the federally published attainment status for Otero County, New Mexico, in 40 CFR 81.322 indicated that this region is designated as attainment (i.e., meeting national standards) for all criteria pollutants, including CO, NO₂, SO₂, PM₁₀, O₃, and Pb. The EPA has recently designated Otero County as attainment for the new 8-hour O₃ and PM_{2.5} standards (EPA 2004a; EPA 2004b). PM_{2.5} designations were made by EPA in January 2005.

Class I Areas. Mandatory PSD Class I areas established under the CAA Amendments of 1977 for New Mexico are listed under 40 CFR 81.421. These are areas where visibility has been determined to be an important issue by the administrator, in consultation with the Secretary of the Interior. The nearest PSD Class I area is the White Mountain Wilderness Area, located approximately 43 miles northeast of Holloman AFB. Other Class I areas within 300 km of Holloman AFB include Bosque del Apache National Wilderness Refuge, Guadalupe Mountains National Park, Carlsbad Caverns National Park, and the Salt Creek and Gila wilderness areas (Figure 3-2).

Climate. The region near Holloman AFB has a semiarid continental climate, with low annual precipitation and many days with clear or partly cloudy skies. The area is far from any major body of water that would moderate the climate, so that summers tend to be hot and relatively dry, and winters are cool and very dry with occasional light snow.



Legend

- Interstate Highway
- FS Class 1 Area
- FWS Class 1 Area
- NPS Class 1 Area
- Holloman AFB
- Other FS
- Other FWS
- Other NPS
- State Boundary
- Tribal Land
- Urban Area

Notes: AFB = Air Force Base; FS = Forest Service; FWS = U.S. Fish and Wildlife Service; NPS = National Park Service
 Source: HAFB n.d. a

Figure 3-2. Prevention of Significant Deterioration Class I Areas near Holloman AFB, New Mexico

The mean annual temperature for Holloman AFB is approximately 62°F. Average monthly temperatures range from 42°F in January to 80°F in July. The average summer high and low temperatures are 93.3°F and 66.0°F, respectively. The average winter high and low temperatures are 55.2°F and 28.7°F, respectively. The average annual precipitation for Holloman AFB is 11.6 inches, with 50 percent falling in thunderstorms during the period July through September. Conversely, the winters are very dry, with the total precipitation during December, January and February averaging 2.0 inches. An average of 4.5 inches of snow falls in the region each year.

Although winds in the region can be strong and gusting in the vicinity of a thunderstorm, typically they are relatively low, averaging 5 miles per hour (mph). The prevailing wind direction is from the west, although southerly winds are common during the warmer months. The atmosphere in the region is generally well mixed. The seasonal and annual average mixing heights can vary from 400 meters in the morning to 4,000 meters in the afternoon. The morning mixing heights are usually low, due to nighttime heat loss from the ground, which produces surface-based temperature inversions. After sunrise, these inversions quickly break up, and solar heating of the Earth's surface results in good vertical mixing in the lower layers of the atmosphere. Dust is frequently entrained into the atmosphere due to gusting winds and the semiarid climate. Most of the seasonal dust storms occur in March and April, when wind speeds are higher.

Current Emissions at Holloman AFB. Baseline emissions from Holloman AFB include conventional stationary sources associated with aircraft and facility maintenance, and mobile sources such as personal vehicles and facility-based utility and construction vehicles, as well as aircraft ground and flying operations within the Holloman AFB airfield. **Table 3-4** presents the baseline emissions at Holloman AFB for employee commuting and on-base vehicles, stationary sources, and aircraft landing/take-off and touch and go operations as reported in the Proposed Action in the Environmental Assessment for the 20th Fighter Squadron Inactivation at Holloman AFB (ACC 2004A). In the following tables and for tables in Section 4.3, volatile organic compounds (VOCs) are precursors to the formation of O₃ in the atmosphere; nitrogen oxides (NO_x) include NO₂ and other related compounds; sulfur oxides (SO_x) include SO₂ and other related compounds; and particulate matter (PM) is equivalent to TSP and includes PM₁₀ as a component.

Regional Air Emissions. The previous section lists on-base emissions for Holloman AFB. The NEPA process, however, must also consider impacts from mobile sources and indirect emissions related to the project, some of which occur outside of the installation. For comparison purposes, **Table 3-5** lists county-wide emissions for Otero County and for AQCR 153 (which includes Otero County), as compiled by EPA in its National Emissions Inventory, which was last updated in 1999 (EPA 2003). The 1999 National Emissions Inventory contains estimates of annual emissions for stationary and mobile sources of air pollutants in each country on an annual basis.

Table 3-4. Criteria Pollutant Emissions at Holloman AFB, Baseline

<i>Source</i>	<i>Annual Emissions (tons/year)</i>				
	<i>CO</i>	<i>VOC</i>	<i>NO_x</i>	<i>SO_x</i>	<i>PM</i>
Commuting	444.9	60.9	36.1	0.1	1.6
On-Base Vehicles	187.1	22.8	220.2	0.1	21.2
Stationary Sources	19.9	92.8	19.5	1.5	11.3
Aircraft (Airfield only)	496.8	147.6	424.5	12.9	78.1
Total Emissions at Holloman	1,148.9	324.4	700.4	14.6	112.2

CO = carbon monoxide; NO_x = nitrogen oxides which include nitrogen dioxide (NO₂) and other nitrogen-related compounds; PM = particulate matter which is equivalent to Total Suspended Particles (TSP) and includes particulate matter (PM₁₀) as a component; SO_x = sulfur oxides which include sulfur dioxide (SO₂) and other sulfur-related compounds; VOCs = volatile organic compounds, which are precursors to the formation of ozone (O₃) in the atmosphere

Source: ACC 2004A

**Table 3-5. Air Emissions Inventory Otero County, New Mexico, and AQCR 153
Calendar Year 1999**

	<i>Pollutants (in Tons per Year)</i>				
	<i>CO</i>	<i>SO₂</i>	<i>NO_x</i>	<i>PM₁₀</i>	<i>VOC</i>
Otero County, NM					
Stationary Sources	15,799.8	326.8	1,430.4	30,481.3	2,501.8
Mobile Sources	14,842.7	63.3	1,657.2	51.4	1,183.2
Air Quality Control Region 153					
Stationary Sources	72,659.9	1,905.0	14,530.2	128,481.3	12,979.2
Mobile Sources	135,738.0	585.7	16,377.5	479.3	10,447.3

CO = carbon monoxide; NO_x = nitrogen oxides; PM₁₀ = particulate matter; SO₂ = sulfur dioxide; VOC = volatile organic compounds

Source: EPA 2003

3.4 NOISE

3.4.1 Definition of Resource

Noise is defined as unwanted sound or, more specifically, as any sound that is undesirable because it interferes with communication, is intense enough to damage hearing, or is otherwise annoying (FICON 1992). Human response to noise varies according to the type and characteristics of the noise, distance between the noise source and the receptor, sensitivity of the receptor, and time of day.

Due to wide variations in sound levels, sound is measured in decibels (dB), which are units of measure based on a logarithmic scale (e.g., each 10-dB increase corresponds to a 100 percent increase in perceived sound). The term most often used when measuring the magnitude of sound is *sound pressure level*. Sound pressure level can vary over an extremely large range of amplitudes. It is a relative quantity, in that it is a ratio between the actual sound pressure and a fixed reference pressure, which is normally the threshold of human hearing. **Table 3-6** presents the subjective effect of changes in sound pressure level. According to EPA Office of Noise and Abatement (1972-1982), under most conditions, a 5-dB change is necessary for noise increases to be noticeable to humans. Sound measurement is further refined by using an A-weighted decibel scale (dBA) that emphasizes the range of sound frequencies that are most audible to the human ear (between 1,000 and 8,000 cycles per second).

Table 3-6. Perceived Changes in Noise as Sound Pressure Changes

<i>Change in Sound Level (decibel)</i>	<i>Change in Sound Pressure</i>		<i>Change in Apparent Loudness</i>
	<i>Decrease</i>	<i>Increase</i>	
3	1/2	2	Just perceptible
5	1/3	3	Clearly noticeable
10	1/10	10	Half or twice as loud
20	1/100	100	Much quieter or louder

Source: ANSI 1986

An A-weighted day-night average sound level (DNL) is a noise metric that averages A-weighted sound levels over a 24-hour period, with an additional 10-dB penalty added to noise events occurring between 10:00 p.m. and 7:00 a.m. This penalty is intended to compensate for generally lower background noise levels at night and the annoyance of nighttime noise events. DNL is the preferred noise metric of the U.S. Department of Housing and Urban Development (HUD), U.S. Department of Transportation, Federal Aviation Administration (FAA), EPA, the Veterans' Administration, and DoD. HUD uses guidelines established by Federal Interagency Committee on Noise (FICON) to determine acceptable levels of noise exposure for various types of land use. The Air Force's AICUZ program uses similar guidelines based on FICON recommendations (see Appendix D). **Table 3-7** provides a generalized summary of FICON guidelines.

Table 3-7. Land Use Compatibility for Noise Zones

<i>Land Use</i>	<i>Noise Zones</i>			
	<i>(65-69 dB)</i>	<i>(70-74 dB)</i>	<i>(75-79 dB)</i>	<i>(80+ dB)</i>
Residential	Generally compatible ¹	Generally compatible ¹	Not compatible	Not compatible
Manufacturing	Compatible	Generally compatible ²	Generally compatible ³	Generally compatible ⁴
Transportation communication, and utilities	Compatible	Generally compatible ²	Generally compatible ³	Generally compatible ⁴
Trade	Compatible	Generally compatible ²	Generally compatible ³	Generally compatible ⁴
Public services	Compatible	Generally compatible ⁵	Generally compatible ⁵	Not compatible
Hospitals, nursing homes	Generally compatible ⁶	Generally compatible ⁶	Not compatible	Not compatible
Educational services	Generally compatible ⁶	Generally compatible ⁶	Not compatible	Not compatible
Cultural, recreational, and entertainment	Generally compatible ⁶	Generally compatible ⁶	Not compatible	Not compatible
Agricultural	Generally compatible ⁷	Generally compatible ⁸	Generally compatible ⁹	Generally compatible ¹⁰
Livestock farming and animal breeding	Generally compatible ⁷	Generally compatible ⁸	Generally compatible ⁹	Generally compatible ¹⁰
Forestry Activities and Services	Generally compatible ⁷	Generally compatible ⁸	Generally compatible ⁹	Generally compatible ¹⁰
Fishery Activities and Services	Compatible	Compatible	Compatible	Compatible
Mining Activities and Services	Compatible	Compatible	Compatible	Compatible

db = decibel; DNL/CNEL = Day-night average A-weighted sound level/community noise equivalent level;
NLR = noise level reduction

- Notes: ¹ Although local conditions may require residential use, it is discouraged in day-night average A-weighted sound level/Community Noise Equivalent Level (DNL/CNEL) 65-69 dB and strongly discouraged in DNL/CNEL 70-74 dB. The absence of viable alternative development options should be determined and an evaluation indicating a demonstrated community need for residential use would not be met if development were prohibited in these zones should be conducted prior to approvals; where community determines the residential uses must be allowed, measures to achieve outdoor to indoor Noise Level Reduction (NLR) for DNL/CNEL 65-69 dB and DNL/CNEL 70-74 dB should be incorporated into building codes and considered in individual approvals; NLR criteria will not eliminate outdoor noise problems. Building location and site planning, and design and use of berms and barriers can help mitigate outdoor exposure, from near ground level sources. Measures that reduce outdoor noise should be used whenever practical in preference to measures which only protect interior spaces.
- ² Measures to achieve the same NLR as required for facilities in DNL/CNEL 65-69 dB range must be incorporated into design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas or where the normal noise level is low.
- ³ Measures to achieve the same NLR as required for facilities in DNL/CNEL 70-74 dB range must be incorporated into design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas or where the normal noise level is low.
- ⁴ Measures to achieve the same NLR as required for facilities in DNL/CNEL 75-79 dB range must be incorporated into design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas or where the normal noise level is low.
- ⁵ Measures to achieve the NLR DNL/CNEL 65-69 dB or DNL/CNEL 70-74 need to be incorporated into the design and construction of structures.
- ⁶ Land use is generally compatible, however, measures to achieve an overall noise level reduction do not necessarily solve noise difficulties and additional evaluation is warranted. Also dependent on individual federal agencies and program considerations of general cost and feasibility factors, as well as past community experiences and program objectives. Localities, when evaluating the application of these guidelines to specific situations, may have different concerns or goals to consider.
- ⁷ Residential buildings require the same NLR as required for facilities in DNL/CNEL 65-69 dB range.
- ⁸ Residential buildings require the same NLR as required for facilities in DNL/CNEL 70-74 dB range.
- ⁹ Residential buildings are not permitted.
- ¹⁰ Residential buildings are not permitted; within each land use category, uses exist where further deliberating by local authorities may be needed due to the variation of densities in people and structures.

Source: USAF 1999

Different land uses and human activities have different sensitivity to noise. Such locations or facilities often include residential dwellings, hospitals, nursing homes, educational facilities, and libraries. Sensitive receptors, defined by a specific location where noise-sensitive activities occur, or a general area that may incorporate sensitive uses (such residential areas) may also include noise-sensitive cultural practices, some domestic animals or certain wildlife species.

3.4.2 Existing Conditions

3.4.2.1 Holloman AFB

Noise associated with activities at Holloman AFB is characteristic of that associated with most Air Force installations with a flying mission. During periods of no aircraft activity, noise associated with base operations results primarily from maintenance and shop activities, ground traffic movement, occasional construction, and similar sources.

Land use guidelines identified in the Federal Interagency Committee on Urban Noise (FICUN) report are used to determine compatible levels of noise exposure for various types of land use surrounding airports (FICUN 1980). In these guidelines, noise contours of 65 to greater than 85 dB (DNL) are frequently used to help determine compatibility of aircraft operations with local land use. **Figure 3-3** depicts the baseline DNL 65 to 85 dB noise contours in 5 dB increments

surrounding the Holloman AFB airfield. **Table 3-8** presents the baseline land acreage exposed to noise levels greater than 65 dB (DNL).

Table 3-8. Noise Contour Acreage, Baseline Conditions

<i>Noise Contour (DNL)</i>	<i>Acres</i>
65 – 70 dB	23,800
70 – 75 dB	12,750
75 – 80 dB	6,970
80 – 85 dB	3,230
85+ dB	3,200
Total	49,950

dB = decibel

DNL = day/night average noise level

Note: Land areas exposed to indicated sound levels.
Total area exposed to DNL 65 dBA or greater is
49,866 acres.

Sources: derived from ACC 2004A

3.4.2.2 Prather Water Main

Noise in the vicinity of the Prather water main is typical of a fairly quiet suburban residential area, with more noticeable vehicular noise during morning and evening commuting hours. Occasional rail traffic on the nearby Southern Pacific railroad provides an intermittent noise source.

3.5 LAND USE RESOURCES

3.5.1 Land Use

3.5.1.1 Definition of Resource

Land use classifications reflect either natural or human activities occurring at a given location. Land use resulting from natural activities includes rangeland and other open or undeveloped areas. Land use resulting from human activities includes residential, commercial, industrial, airfield, recreational, and other developed areas. Management plans, policies, and regulations regulate the type and extent of land use allowable in specific areas and protection specially designated for environmentally sensitive areas. The ROI for land use resources for the proposed WINDO plan includes the lands of Holloman AFB and portions of Otero County. It also includes the Prather water main ROW and adjacent properties in the City of Alamogordo.

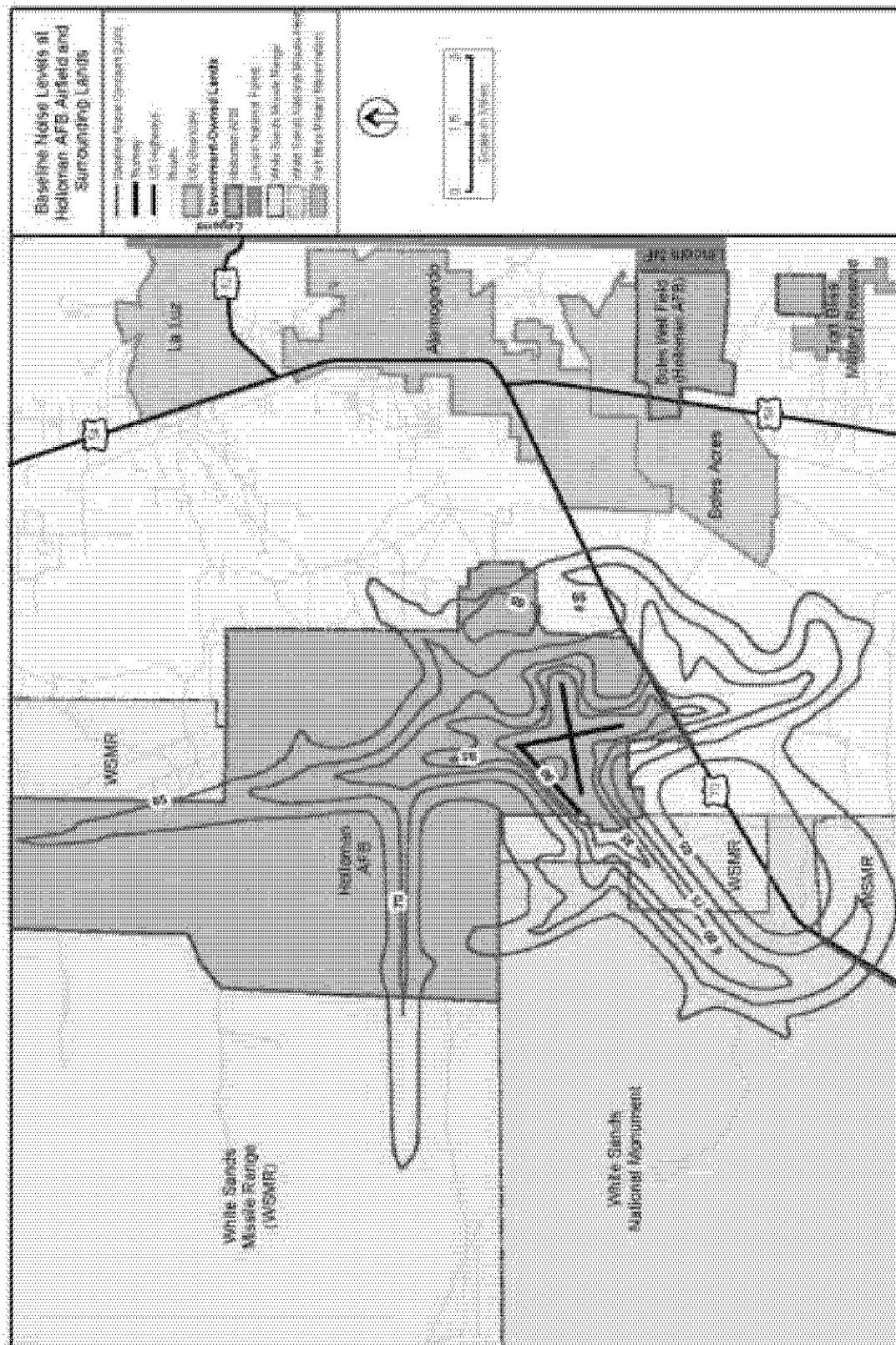


Figure 3-3. Baseline Noise Levels at Holloman Airfield and Surrounding Areas Land Use Resources

3.5.1.2 Land Use on Holloman AFB

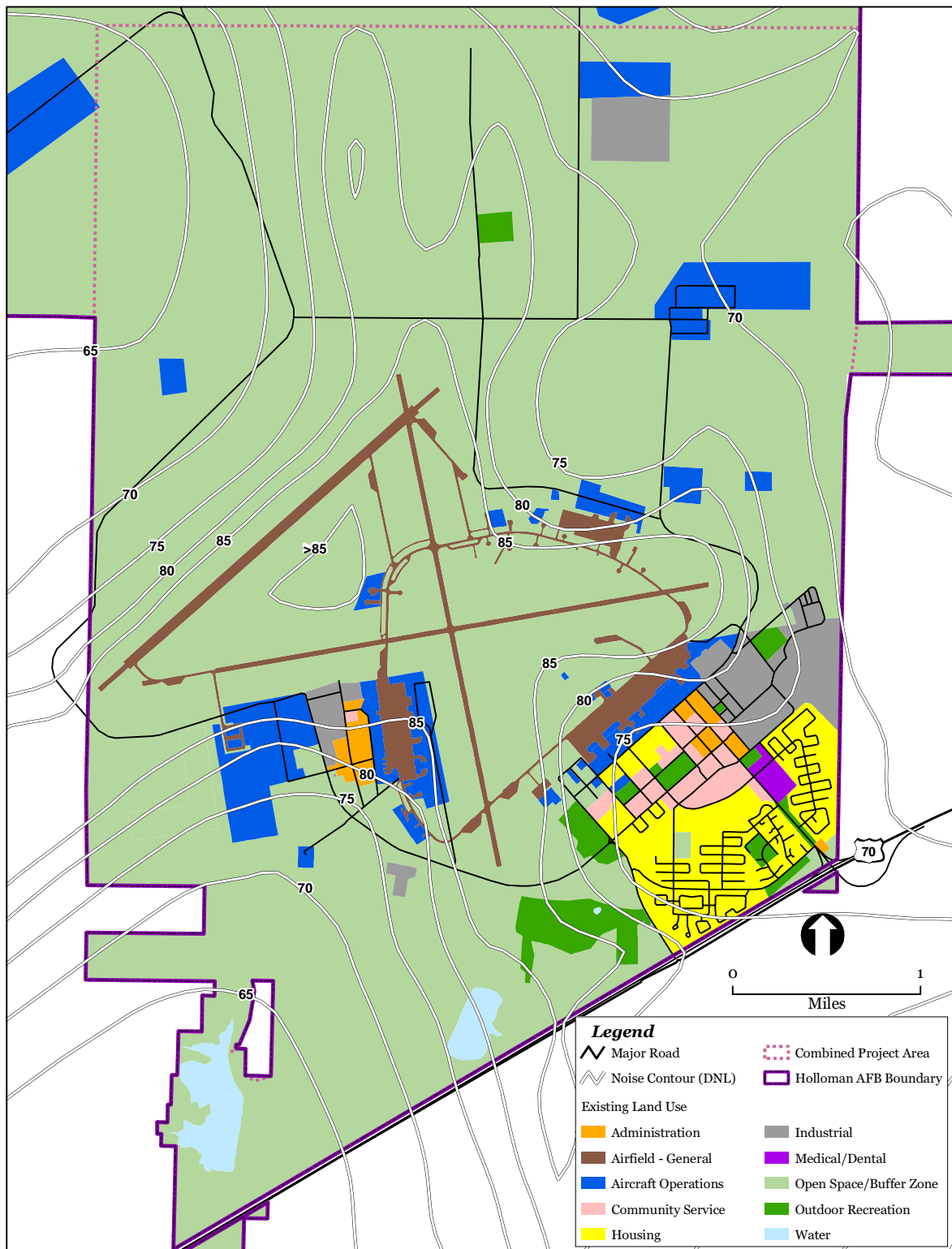
Holloman AFB is comprised of two parcels of land that together cover about 59,600 acres. This includes the Bolles Well Water System Annex, a small parcel of about 7,450 acres east of US 54 (Figure 1-1). The larger 52,055-acre parcel is predominately undeveloped open space used for a variety of mission-related activities. The heaviest concentration of facilities is on the south side of the base in the main area and west area (Figure 1-2). These two areas flank the southern end of the airfield. Both areas have airfield pavement and involve a mixture of industrial, aviation-related, administrative, and community uses. In addition, the main area includes housing, outdoor recreation and medical land uses. The north area of the base has pockets of facilities for industrial, mission, and some outdoor recreation activities, but is predominantly undeveloped open space. Some open space serves as a buffer required for safety clearances, security areas, utility easements, and environmentally sensitive areas.

The Holloman General Plan guides overall organization and development on the base to achieve the most effective use of land and facilities to support the mission. The General Plan defines 12 land use categories for classifying uses on the installation. **Table 3-9** lists and describes these categories. **Figure 3-4** shows the current land uses for the southern part of the base where the proposed projects would be located. The dominant uses are airfield, aircraft operations and maintenance, and industrial. The main cantonment includes a mixture of uses similar to those of a small town or city.

The base uses the AICUZ program to provide land use compatibility guidelines for areas exposed to increased safety risks and noise in the vicinity of the airfield. The noise compatibility guidelines recommended in the AICUZ program (see Appendix D) are similar to those used by HUD and the FAA (see Table 3-7). The intent of the program is to provide information to surrounding jurisdictions to guide planning and regulation of land use.

Table 3-10 (see also Figure 3-4) provides noise exposure by land use category on Holloman AFB. Almost 87 percent of this land is open space. Holloman uses noise exposure information for planning and improving land use noise compatibility over time. Also, this information is used by base planners and designers for incorporating noise level reduction construction in new facilities and renovation projects.

For the most part, existing land uses on the base, having been developed within planning and safety criteria, are compatible with each other. These uses include safety and security restricted zones, contamination sites, and natural features such as floodplains, wetlands, and sensitive habitats. Most land suitable for development has already been developed; finding suitable sites for future development in the main area has become increasingly difficult. In many cases, deteriorated or nonsupportive facilities are demolished to make room for new facilities.



Note: AFB = Air Force Base; DNL = day/night level

Sources: HAFB n.d. a,h; ACC 2004b

Figure 3-4. Land Use, Noise Levels, and Major Roads on Holloman Air Force Base—Combined Project Area

Table 3-9. Land Use Categories at Holloman AFB

<i>Land Use Category</i>	<i>Example</i>
Airfield	Runway, overruns, taxiways, aprons
Aircraft Operations and Maintenance	Hangars, maintenance shops, aircrew facilities
Industrial	Supply, civil engineering facilities, vehicle maintenance facilities
Administrative	Headquarters facilities, base support, security
Community Commercial	Base exchange, commissary, credit union, dining halls
Community Services	Schools, post office, library, chapel
Medical	Health care center, dental clinic, veterinarian facility
Accompanied Housing	Family housing, temporary housing, trailer courts
Unaccompanied Housing	Dormitories, visiting officers quarters, visiting airman quarters
Outdoor Recreation	Golf course, swimming pool, playing fields
Open Space	Conservation areas, safety clearance zones
Water	Storm drainage collection ponds

Source: 49 FW 2004b

Table 3-10. Current Noise Exposure Levels (DNL) on Holloman AFB by Land Use Category

<i>Land Use</i>	<i>Current Average Noise Level (DNL)</i>					
	<i>65-70dB</i>	<i>70-75dB</i>	<i>75-80dB</i>	<i>80-85dB</i>	<i>>85dB</i>	<i>Total</i>
Airfield	—	79	16	82	295	456
Aircraft Operations and Maintenance	382	193	178	116	93	963
Industrial	1	204	114	33	32	383
Administration	—	20	26	25	8	79
Community/commercial	—	108	16	—	3	127
Community Services	—	—	—	—	—	—
Medical	—	24	—	—	—	24
Accompanied housing	—	401	42	4	—	446
Unaccompanied housing	—	37	11	—	—	48
Outdoor recreation	—	54	51	73	52	229
Open Space	7,342	4,313	2,520	1,508	2,347	18,030
Water	—	—	29	18	—	47

<i>Land Use</i>	<i>Current Average Noise Level (DNL)</i>					<i>Total</i>
	<i>65-70dB</i>	<i>70-75dB</i>	<i>75-80dB</i>	<i>80-85dB</i>	<i>>85dB</i>	
Total	7,725	5,354	3,067	1,857	2,829	20,832

> = greater than

DNL = day-night average sound level

dB = decibel

Notes: ¹White Sands Missile Range

²White Sands National Monument

³Primarily open rangeland used for grazing; mostly public accessible and available for other extractive uses; includes about 980 acres of private land used for grazing and limited commercial enterprises

⁴Generally privately owned land, with commercial or industrial development

Source: ACC 2004a

3.5.1.3 Land Use Surrounding Holloman AFB

To the south and northeast of Holloman AFB, land is owned and administered by the Bureau of Land Management (BLM) and primarily leased for grazing. White Sands National Monument, encompassing an area of about 145,000 acres, is located to the southwest. The monument is administered by the National Park Service and used for recreation and preservation of special resource values (e.g., flora and fauna, geologic, visual). White Sands Missile Range surrounds the monument and borders Holloman AFB to the north, west, and south. This area supports a variety of military and test and development activities.

A combination of BLM, state-owned, and private lands is located to the east, southeast, and southwest of the base. Private lands fall under the jurisdiction of Otero County. The City of Alamogordo has joint jurisdiction with the county for land use regulations for land within five miles of the city limits. Grazing is the primary use close to the base. Scattered commercial development is found along US 70 between Holloman AFB and Alamogordo. On the south side of US 70, a mix of residential, commercial, and light industrial uses occurs closer to the city limits.

The incorporated boundary of the City of Alamogordo is about three miles east of the base. Although the city controls land use through zoning, neither the city nor the county has policies that consider noise exposure from aircraft operations at Holloman AFB. However, the AICUZ program, which considers noise and compatible land use, actively involves city and county officials. Because there has historically been recognition of the intrinsic relationship of activities at Holloman AFB with the success of the local economy, compatible coexistence characterizes this relationship.

Almost 60 percent of the land exposed to noise levels of 65 L_{dn} or greater is used for military activities. Grazing is the dominant use of most of the off-base land with some commercial/industrial development along US 70. These uses are compatible with the current noise exposure levels. Government entities own and manage the majority of the land surrounding the airfield. Some facilities at White Sands National Monument are exposed to

noise levels that are not optimal for the monument's visitors; however, flight tracks used by aircraft avoid direct overflight of facilities to the extent possible (USAF 1998a). Private parcels along the eastern and southern boundaries of the installation are undeveloped (ACC 2004a).

3.5.1.4 Land Use Along Prather Water Main

The 4-mile Prather water main project area is located in the southern part of the City of Alamogordo along Hamilton Road, a residential road. There are residential areas along the northern part of the pipeline segment. Perimeter walls surround some of these subdivisions. A combination of side streets and paved and gravel driveways border Hamilton Road and the pipeline alignment. Further south, housing density decreases. Most of the adjacent properties have wire fences and dirt access driveways. The Desert Lakes Municipal Golf Course, which includes a small park, also borders Hamilton Road.

3.5.2 Transportation

3.5.2.1 Definition of Resource

Existing roads and highways within the ROI are described below as: (1) the regional network, representing the major links between Alamogordo and the surrounding region; (2) the local network, representing roads within the City of Alamogordo and nearby communities; and (3) the road network on Holloman AFB. The major roads in the project area are shown on Figure 1-1.

3.5.2.2 Regional Transportation Network

The region surrounding Holloman AFB is served by a network of state and county highways. Holloman AFB is located 10 miles southwest of Alamogordo, New Mexico, on US 70 and immediately north of White Sands National Monument. Alamogordo is the major population center in this region. US 70 provides regional access to Las Cruces, New Mexico, located 50 miles to the southwest. Just south of Alamogordo, US 70 merges with US 54, which provides access to El Paso, Texas. Just north of Alamogordo, US 82 intersects US 54/US 70 and travels east through Artesia, New Mexico. US 54/US 70 splits north of the junction with US 82 in Tularosa, New Mexico; US 70 travels northeast through Ruidoso, New Mexico, and US 54 provides access to northern New Mexico. In Las Cruces, US 70 intersects with Interstate 25, a major north/south route providing access to Albuquerque, New Mexico; El Paso, Texas; and Interstate 10 (USAF 1998a).

3.5.2.3 Local Transportation Network

The major north/south roadway through Alamogordo is White Sands Boulevard (US 54/US 70), which extends 5.3 miles from US 82 south to the junction of US 54 and US 70 (Figure 1-1). White Sands Boulevard passes through the Alamogordo business district, and carries the heaviest volume of traffic through town. The major collector streets providing access to the rest of the city are First Street, Tenth Street, and Indian Wells Road. Each of these roads has a signalized intersection with White Sands Boulevard. A four-lane, access-controlled bypass route approximately one-half mile west of and parallel to White Sands Boulevard intersects US 54 and US 70 at the south end and US 54/US 70 and US 82 at the north end.

The Prather water main ROW follows Hamilton Road, a two-lane paved road south and east of the intersection of US 54 and US 70. Gravel shoulders are well defined for portions of the road, and less well defined or narrow in others. Along some housing developments, the roadway has paved pull-offs for access to U.S. Postal mailboxes. The 4-mile stretch under consideration for this action has at least five intersecting side streets, mostly unpaved. There are also over 30 residential driveways along the road. The Southern Pacific railroad line closely parallels US 54 on the east side but its alignment does not directly overlap with the proposed project area.

3.5.2.4 Holloman Transportation Network

The main gate to Holloman AFB is located on US 70 approximately 10 miles west of US 54. The west gate, located at the intersection of US 70 and West Gate Avenue, is south of the main gate on US 70 and is used for exiting traffic only. The La Luz gate is located on the north end of the base and provides service for base personnel who live in the La Luz area north of Alamogordo.

The road network on Holloman AFB within the combined project area (see Figures 1-2 and 3-4) is organized into arterials, collector, and local streets. Primary arterials include First Street and West Gate Avenue leading directly to and from the main cantonment gates. Other arterials that directly interface with proposed WINDO projects include Delaware Avenue, 49er Avenue, and Eleventh Street. Kelly Road is classified as a collector street, and provides access around the far west side of the airfield. Dezonía Road, also a collector street, is the primary access route to the proposed North Fire Station.

The General Plan for Holloman AFB describes some of the most noticeable transportation issues for the base, including traffic backing up onto US 70 at the Main Gate, the intersection of First Street and Delaware Avenue, and the school bus drop-off on Arnold Avenue. Only one intersection on base, First Street and New York Avenue, warrants, and has, a traffic signal (49 FW 2004b).

3.6 SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE

3.6.1 Socioeconomics

3.6.1.1 Definition of Resource

Socioeconomic resources for this analysis are characterized in terms of demographics and economic activity. Holloman AFB is situated in south-central New Mexico, six miles west of the City of Alamogordo. Virtually all active-duty military personnel and the large majority of base-related civilian personnel reside in Alamogordo and other communities in Otero County. Thus, the ROI for socioeconomics is defined as Otero County, with additional attention focused on the City of Alamogordo.

3.6.1.2 Demographics

The 2000 census established the Otero County population as 62,298 persons (**Table 3-11**), an increase of approximately 20 percent from the 1990 population of 51,928 (Census 2004). The 2003 population of the county is estimated to be 62,371 persons. Fifty-seven percent of the county's population resides in the City of Alamogordo, which includes Holloman AFB residents. The population of Alamogordo was 35,582 persons in 2000, 27 percent greater than

the 1990 population of 27,986 (Census 2000a). Population growth in Alamogordo accounted for close to three-quarters of the overall county growth during the previous decade.

Table 3-11. Population in Otero County and the City of Alamogordo

<i>Location</i>	<i>Population</i>		<i>% Change</i>
	<i>1990</i>	<i>2000</i>	
Otero County	51, 928	62, 298	+ 20
City of Alamogordo	27, 986	35, 582	+ 27

Source: Census 2000a; Census 2004

According to the U.S. Census Bureau (Census), there were 22,984 households in Otero County with an average household size of 2.66 persons in 2000. Population density in the county is 9.4 persons per square mile, compared to 15.0 for the State of New Mexico (Census 2004). The residential population is concentrated in Alamogordo, where population density is 1,612 persons per square mile (BBER 2000a). The remaining 98 percent of the county's land area is very sparsely populated, with a population density of less than five persons per square mile.

U.S. Air Force military personnel assigned to Holloman AFB and their dependents number approximately 11,200 persons (HAFB 2004a). Persons associated with the German Air Force at Holloman AFB, including both active duty military and their dependents, number 1,600 persons. An additional 950 appropriated fund civilian personnel are employed at Holloman AFB. Assuming all these persons reside in the vicinity of Alamogordo, the base-related population comprises 25 percent of the city population.

3.6.1.3 Economic Activity

Alamogordo is the county seat and commercial center of Otero County. The region's economic activity is closely tied to military operations, including those at Holloman AFB and at nearby White Sands Missile Range. Tourism and light manufacturing also contribute to the local economy (ACOC 2004).

Employment has steadily increased over the past 20 years. The total number of employed persons was 22,977 workers in 1980; 25,322 in 1990; and 27,278 in 2000 (BEA 2004a). The unemployment rate decreased in 2000 to 8.1 percent, down from over 10 percent in the early 1990s, and has continued its decline to current levels of about five percent (BBER 2000b).

By far, the largest employer in Otero County is the federal government, with the Air Force contributing over 6,000 military and civilian jobs at Holloman AFB. White Sands Missile Range, partially in Otero County, employs about 6,200 military and civilians, with residences divided between Otero and Doña Ana Counties in New Mexico and El Paso County in Texas (HAFB 2004a). The German Air Force at Holloman AFB supports an additional 700 jobs. Other major employers in Otero County include Alamogordo Public Schools with 800 employees, the Mescalero Resort and Casino with 750 employees, and Wal-Mart with 600 employees (OCEDC 2004).

In 2002, Otero County had a per capita personal income of \$19,450, compared to the state and national averages of \$21,931 and \$29,469, respectively (BEA 2004b). Average earnings per job in the county in 2002 were \$31,380.

The total annual economic impact generated by Holloman AFB activities is estimated at \$485 million (HAFB 2004a). Military and civilian payroll total \$255 million. Contracts for services and the purchases of supplies and equipment amount to \$92 million annually. Major construction contracts in fiscal year (FY) 2003 totaled \$45 million.

A study commissioned in 2002 by the Otero County Economic Development Council estimated that Holloman AFB generated \$207 million in annual sales to the regional economy, representing 52 percent of total annual retail and wholesale trade (IPED 2002). This total economic contribution is comprised of both direct and secondary (indirect and induced) effects. The economic activity generated by base operations supports an estimated 4,550 additional civilian jobs. Discounting the number of these jobs held by dependents of Holloman AFB personnel, the incremental employment effect is about 2,600 jobs.

3.6.2 Environmental Justice

3.6.2.1 Definition of Resource

EO 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, directs federal agencies to address environmental and human health conditions in minority and low-income communities. The purpose of environmental justice studies is to determine whether or not actions of federal agencies disproportionately impact the human health and environmental conditions in potentially disadvantaged communities. EO 13045, *Protection of Children from Environmental Health Risks and Safety Risks*, directs federal agencies to identify and assess environmental health and safety risks that may disproportionately affect children.

For purposes of this analysis, minority, low-income and youth populations are defined as follows:

- *Minority Population:* Persons of Hispanic origin of any race, Blacks, American Indians, Eskimos, Aleuts, Asians, or Pacific Islanders.
- *Low-Income Population:* Persons living below the poverty level, based on an average poverty threshold for a family of four in 2000 of \$17,603 in annual income.
- *Youth Population:* Children under the age of 18 years.

Estimates of these three population categories were developed based on data from the U.S. Bureau of the Census. The census does not report minority population, per se, but reports population by race and by ethnic origin. Low-income and youth population figures also were drawn from the Census 2000 reports (Census 2000b).

3.6.2.2 Minorities and Low-Income Population and Children

Disadvantaged socioeconomic groups within the ROI are specifically considered in order to assess the potential for disproportionate occurrence of impacts (**Table 3-12**). Based on Census

2000 data, the percentage of persons and families in the ROI with incomes below the poverty level was just slightly higher than state levels. In Otero County during 2000, 19.3 percent of the population was living below the poverty level, compared to 18.4 percent in the State of New Mexico as a whole. The City of Alamogordo had a slightly lower 2000 individual poverty rate of 16.5 percent.

Minority persons represent 44.3 percent of the county population and 42.2 percent of the city population. Hispanic or Latino persons are the largest minority group, representing 32.2 percent of the total county population and 72.7 percent of the minority population. By comparison, minority persons represent 55.3 percent of the state population, with Hispanic or Latino persons accounting for 76.1 percent of the state minority population. The youth population, which includes children under the age of 18, accounts for 29.5 percent of the county population and 28.7 percent of the city population, compared to 28.0 percent at the state level.

Table 3-12. 2000 Population and Environmental Justice Data

<i>Area</i>	<i>Population</i>	<i>Minority Persons</i>		<i>Persons Below Poverty</i>		<i>Children under 18</i>	
		<i>Number</i>	<i>Percent</i>	<i>Number</i>	<i>Percent</i>	<i>Number</i>	<i>Percent</i>
State of New Mexico	1,819,046	1,005,551	55.3	328,933	18.4	508,574	28.0
Otero County	62,298	27,598	44.3	11,737	19.3	18,352	29.5
City of Alamogordo	35,582	15,012	42.2	5,771	16.5	10,196	28.7

Notes: 1. The U.S. Census calculates percent low-income population for individual counties based on total county populations that differ slightly from the county populations reported in the first column.
 2. Population figures for the each category are from different reporting years. Therefore, except for minority population, the percentage figures are not based on the total population presented in this table but from the relevant data year.

Source: Census 2000a,b,c

3.7 CULTURAL RESOURCES

3.7.1 Definition of the Resource

Cultural resources include historic districts, sites, buildings, structures, or objects considered important to a culture, subculture, or community for scientific, traditional, religious or other purposes. They include archaeological resources, historic architectural/engineering resources, and traditional resources. Cultural resources also include historic properties that are eligible for listing in the NRHP. In addition, American Indian sacred sites or traditional resources that may not be historic properties are considered cultural resources. The American Indian and Alaska Native Policy emphasizes the importance of respecting and consulting with tribal governments on a government-to-government basis to assess the effects of proposed DoD actions upon protected tribal resources, tribal rights, and Indian lands before decisions are made by the services.

The ROI for cultural resources for the combined project area is defined as each project's footprint, including any areas that could be used temporarily for staging or other project-related

activities. For the Prather water main, the ROI consists of the existing and proposed ROW, and includes any areas that would be used for staging or other actions associated with the project.

3.7.2 Existing Conditions

3.7.2.1 Historical Setting

Humans have inhabited the area near Holloman AFB for at least 12,000 years. The climate of the American Southwest was once cooler and moister. As a result, it supported mammoth, musk ox, giant beaver, mastodon, and sloth, which in turn supported human occupation. PaleoIndians, the first human inhabitants of the area, were big game hunters until about 8,000 years before the present (BP). They are best known through the artifacts left behind, principally projectile points (e.g., Clovis and Folsom spear points).

During the Archaic Period (8,000 to 2,800 years BP), the climate gradually became warmer and drier, forests gave way to desert scrub and grassland. By the middle of the period, vegetation in the area largely resembled the conditions of today, and most of the large mammals upon which the PaleoIndians relied became extinct. People continued to rely on hunting but developed diverse technologies and used a greater variety of plant resources, as evidenced by an increased variety of chipped and ground stone tools.

After the Archaic Period and until about 1,000 years ago, groups became increasingly less mobile and dramatically increased their reliance on agriculture, particularly maize production. People of this time developed sophisticated irrigation technologies, fine and elaborately decorated ceramics, long distance trade, solar calendars, and social and political systems to manage the higher population densities that are possible with a successful, agriculture-based economy. Large multi-room pueblos were constructed, perhaps housing as many as a thousand people (Fagan 1991). Toward the end of the 13th century A.D., a major drought occurred throughout the Southwest. When agriculture failed and populations naturally reduced through attrition, groups relocated to environments that could support them (HAFB 1999).

Spanish explorers entered the region beginning in the mid-1500s, encountering Apache resistance. Apache occupation continued until the mid-1700s, when the Comanche entered the region and engaged in raids against eastern Pueblo and Spanish settlements that led to military campaigns by the Spanish. In 1810, a treaty between the Spanish and the Mescalero Apache established a reservation for the Mescalero.

After the war between the U.S. and Mexico in 1846, most of New Mexico and Arizona was ceded to the U.S. The Texas/New Mexico borders were established in 1850. American military forts were established by the early 1860s to defend routes of travel through the region. Most settlement occurred after 1882 and the arrival of the Southern Pacific Railroad. Ranching, which began in the late 1800s, continued to be important into the 1900s. Mining began in the nearby San Andres, Oscura, Mockingbird, and Jicarilla mountains during the 1870s, spurring local settlement and the development of water control systems (HAFB 1999).

Alamogordo Army Air Field (later renamed Holloman AFB) was created in 1942 to serve as a center for the British Overseas Training Program where aircrews would train over the uninhabited expanses of New Mexico (HAFB 2004b). With the December 7, 1941, attack on Pearl

Harbor, Britain decided not to pursue its overseas training program. The U.S. elected to establish a base at the same location to train its own growing military. For the remainder of World War II, the base served as the training grounds for B-17, B-24, and B-29 bomber crews.

After World War II, the base was renamed Holloman Air Force Base and, along with the adjacent White Sands Proving Ground, became the primary testing area for pilotless aircraft, guided missiles, and other research programs (HAFB 2004b). Today, Holloman AFB supports approximately 21,000 active duty, guard, reserves, retirees, DoD civilians and their family members (HAFB 2004b).

3.7.2.2 Identified Cultural Resources

Approximately 57,600 acres of Holloman AFB has been surveyed for cultural resources. This represents about 96 percent of the base's 59,639 acres. Most of the survey is a result of projects between 1993 and 1997 (HAFB 1999). The unsurveyed acres are entirely within the built-up, completely modified, developed area of Holloman AFB. Through these surveys, 363 archaeological resources and almost 1,500 buildings (potential architectural resources) have been identified on base and base-administered lands. Of the 363 recorded, 250 are located on the main base with the remaining located on the BWWSA.

Archaeological Resources

Of the 250 archaeological resources located on the main area of Holloman AFB, 135 are associated with the activities of indigenous populations, distributed between four recognized time periods spanning almost 12,000 years. There are an additional 23 historic properties attributable to the historic period and are primarily associated with ranching, 49 cultural resources related to the military presence in the Tularosa Basin, and 41 cultural resources that have both an indigenous and a historic component. Two of the cultural resources are isolated thermal features with no associated artifacts, and, without testing, defy categorization (HAFB 1999).

Thirty-five of the cultural resources have been evaluated as eligible to the NRHP, 142 are potentially eligible, and 73 are considered ineligible (HAFB 1999).

Historic Architectural Resources

Currently there are 1,452 architectural resources on HAFB (HAFB 1999). Of these, 60 are recognized as being associated with World War II (pre-1946), 76 are related to the Cold War Period (1946 to 1989), and the remaining 1,316 architectural resources are post-1945 properties. Although they are not part of the total, there are an additional 22 pre-military Historic Era architectural resources on Holloman AFB, yielding a total of 1,474 architectural resources. Of these, 29 are considered eligible for inclusion in the NRHP, 158 are potentially eligible, 50 are considered ineligible, and 79 remain unevaluated (HAFB 1999).

Resources in the Vicinity of WINDO Projects on Holloman AFB

The current proposed action involves 12 projects at specified locations (Figures 2-1 and 2-5). All the Areas of Potential Effects (APEs) on the main base have been surveyed for cultural resources. Two of these project areas are proximal to recorded archaeological resources

(**Table 3-13**). Site LA104254 (HAR-035) is within the APE for the proposed golf course construction. It is described as an Archaic flaked-stone scatter with a PaleoIndian component (ADAC 2002). Surface collections and excavations have determined that the site is not eligible for the NRHP. The Eagle Water Tank project is in the midst of site LA104274 (HAR-041), the Missile Stands Test Area, which was the location of numerous missile test programs, including the Ground-to-Air Pilotless Aircraft, Jet Bomb 2, the North American Test Instrument Vehicle, and the Aerobee Rockets. Also associated with the Missile Stands Test Area are over 170 features, including instrumentation stations, cinetheodolite fixed camera ground stations, concrete pads, vaults, berms, poles, and other structures. LA104274 is eligible for the NRHP (HAFB 1997).

Table 3-13. Archaeological Resources in Vicinity of Holloman AFB WINDO Projects

<i>Resource name and type</i>	<i>National Register of Historic Places eligibility</i>	<i>Adjacent project¹</i>
HAR-035/LA104254—Lithic scatter	Not eligible	Golf course (E)
HAR-041/LA104274—Missile stands test area	Eligible	Eagle Water Tank (A)

Note: Letter in parentheses corresponds to project location on Figure 2-1.

Six architectural resources are within the ROI of specific Holloman WINDO projects: Buildings 304, 524, 761, 869, 920 and 921. **Table 3-14** lists those buildings and their associated WINDO projects. The other buildings have not been evaluated for NRHP eligibility, and are all less than 50 years old. Building 524 was a standard Air Force parachute service shop (with cement block construction) with no distinctive features, and no known connection to historical events. It was built in 1955 and demolished in 2004. The other buildings have not been evaluated for NRHP eligibility, are less than 50 years old, and are not directly related to the recognized historic buildings that better exhibit the historic character of Holloman AFB.

Resources in the Vicinity of Prather Water Main

A recent survey of the Prather water main area of impact found a few isolated artifacts identifiable with the prehistoric occupation of the vicinity. None of these were in associations or settings that would indicate potentially significant cultural resources or that merit consideration for the NRHP (USACE 2005).

Traditional Resources

Native American groups with historic ties to the area (e.g., the Mescalero Apache) and the Tigua have not identified any traditional cultural properties on Holloman AFB (HAFB 1999).

Table 3-14. Buildings in ROI of Holloman WINDO Projects

<i>Building</i>	<i>Construction date</i>	<i>Current use</i>	<i>National Register of Historic Places eligibility</i>	<i>WINDO project¹</i>
304	1956	Fire station	Unevaluated	Fire/crash rescue stations (B)
761	1957	Golf clubhouse/equipment	Unevaluated	Golf course (E)
869	1965	Fire station	Unevaluated	Fire/crash rescue stations (B)
920	1959	Ancillary explosives facility	Unevaluated	Mobility processing center (C)
921	1959	Ancillary explosives facility	Unevaluated	Mobility processing center (C)

Notes: ¹ Letter in parentheses corresponds to project location on Figure 2-1.

3.8 SAFETY

3.8.1 Definition of Resource

Issues of safety involve explosives safety, ground safety and flight safety associated with operations conducted at Holloman AFB, New Mexico. Explosives safety involves the management and use of ordnance or munitions associated with airbase operations and training activities. Ground safety considers issues associated with operations and maintenance activities that support base operations and activities, including fire safety. Fire safety specifically focuses on potential fire risks associated with both aircraft operations and normal ground-related fire safety issues. Flight safety involves the potential for aircraft accidents. As the construction activities would not involve a change in airspace or the way pilots fly, this analysis does not involve a discussion of airspace issues.

3.8.2 Existing Conditions

3.8.2.1 Explosive Safety

Defense Department Explosives Safety Board (DDESB) 6055.9-Standard and Air Force Manual 91-201 Explosives Safety Standards represent DoD and the Air Force guidelines for complying with explosives safety. These regulations, as well as AFI 91-204, identify explosives safety mishaps involved in both explosive and chemical agents. Explosives include ammunition, propellants (solid and liquid), pyrotechnics, warheads, explosive devices, and chemical agent substances and associated components that present real or potential hazards to life, property, or the environment.

Siting requirements for munitions and ammunition storage and handling facilities are based on safety and security criteria. Defined distances are maintained between munitions storage areas and a variety of other types of facilities. These distances, called QD arcs, are determined by the type and quantity of explosive material to be stored. Each explosive material storage or

handling facility has QD arcs extending outward from its sides and corners for a prescribed distance. QD areas on Holloman AFB in the combined project area are shown on **Figure 3-5**. Within these QD arcs, development is either restricted or prohibited altogether in order to ensure safety of personnel and minimize potential for damage to other facilities in the event of an accident. In addition, explosives storage and handling facilities must be located in areas where security of the munitions can be maintained at all times. Identifying the QD arcs ensures that construction does not occur within these areas.

Holloman AFB controls, maintains, and stores all ordnance and munitions required for mission performance in accordance with Air Force and DDESB safety procedures. All munitions maintenance is carried out by trained, qualified personnel using Air Force-approved technical data for the specific type of ordnance. Ample storage facilities exist, and all facilities are fully certified for the ordnance they store. No storage facility waivers are currently in effect.

The Air Force imposes procedures for arming and de-arming munitions and ordnance. All such activities occur on defined arm/de-arm pads. An arm/de-arm pad is located at the end of each runway and at the specified distance for safety away from incompatible land uses. Air Force and DDESB safety procedures require safeguards on weapons systems and ordnance that ensure against inadvertent releases.

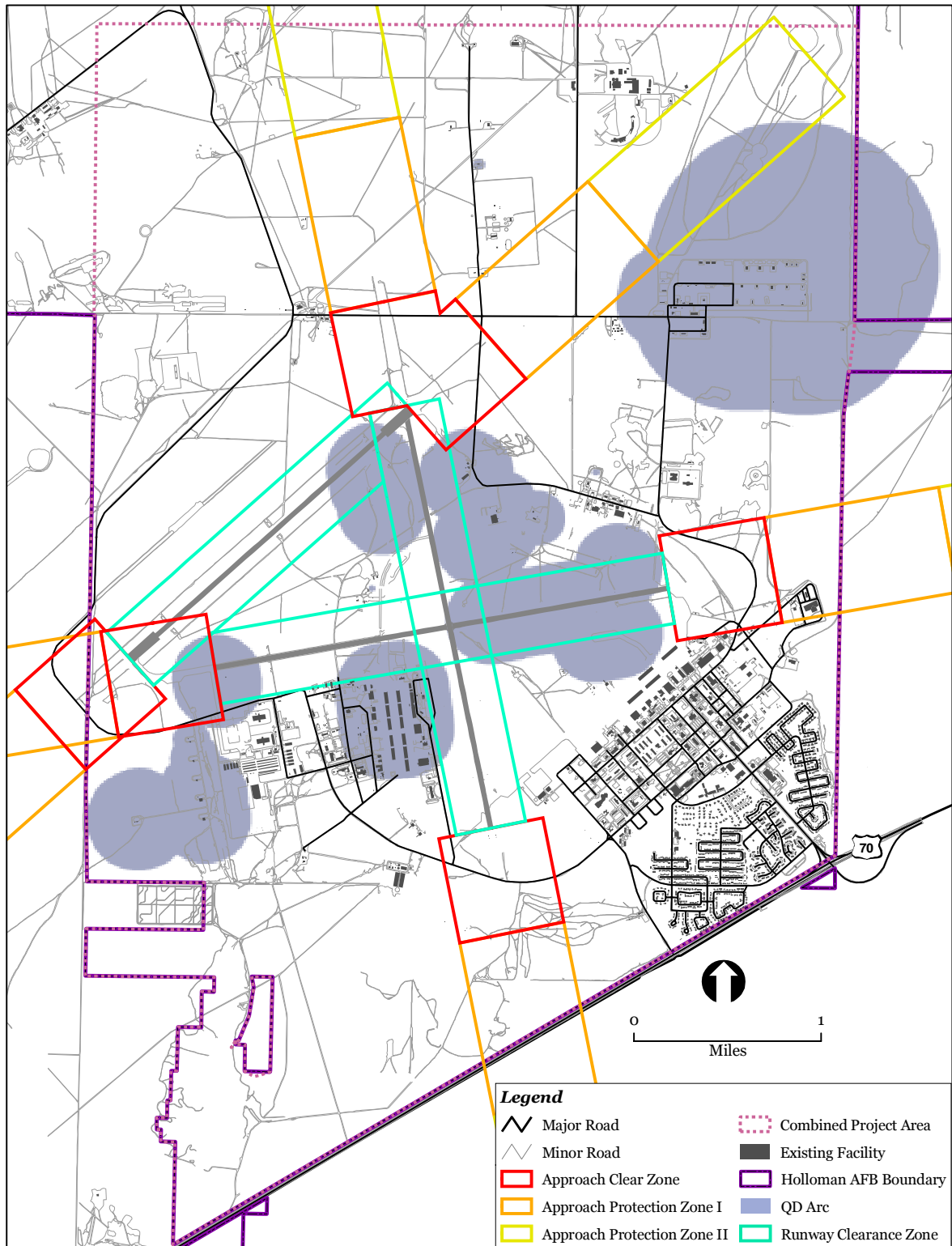
Both live and inert munitions are stored and handled at Holloman AFB. Inert training ordnance accounts for the vast majority of training materials. Trained, qualified personnel using Air Force approved technical data carry out all munitions maintenance and aircraft loading. All storage facilities are approved for the specific ordnance involved.

3.8.2.2 Ground Safety

Ground safety includes many categories (AFI 91-204) consisting of ground and industrial operations, operational and occupational safety hazards (OSHA), motor vehicles use, off-duty military and maritime activities, and fire. Ground mishaps can occur on ground or water, on or off an installation, and may involve Air Force personnel, contractors, and property losses. They can occur in a work environment from the use of equipment or materials including administrative, supply, custodial, and maintenance for Air Force functions. Holloman AFB fire and emergency services meet all established Air Force staffing and equipment standards.

3.8.2.3 Flight Safety

In addition to noise concerns, airfield environment planning is also concerned with two other land use determinants: (1) accident potential and (2) hazards to air navigation (e.g., erection of structures that protrude into the airspace or release of substances into the air that impair visibility). These two concerns are discussed in more detail in the following paragraphs. Figure 3-5 shows applicable flight safety clearance areas for the Holloman airfield.



Notes: AFB = Air Force Base; QD = quantity-distance

Sources: HAFB n.d. a,c,d,I,j,k

Figure 3-5. Runway Clear Zones, Accident Potential Zones, and Quantity-Distance Areas on Holloman AFB

3.8.2.4 Accident Potential

Air Installation Compatible Use Zone

Areas around airfields are exposed to the potential for aircraft accidents despite well-maintained aircraft with highly trained aircrews. The DoD developed the AICUZ program to aid in the development of planning mechanisms that protect the safety and health of personnel on and adjacent to military airfields and preserve operational capabilities.

The AICUZ program consists of three distinct parts: Accident Potential Zones (APZ); hazards to Air Navigation (Height and Obstruction Criteria established by the FAA); and Compatible Use Noise Zones.

Accident Potential Zones. Accident potential relies on identifying where most accidents have occurred in the past at military airfields (USAF 1972). This approach does not produce accident probability statistics since the question of probability involves too many variables for an accurate prediction model to be developed. Rather, the analysis of military aircraft accident history focuses on determining where, within the airfield environments, an accident is likely to occur and how large an impact area is likely to result from any single accident. To this end, an expanded CZ and two APZs have been designated at each end of military runways as follows (Figure 3-5).

- **Clear Zones.** The CZs at Holloman, required under current criteria, are shown in Figure 3-5. The CZ is a rectangular area 3,000 feet wide by 3,000 feet long (Class B runway) and occurs at each end of the runway. The potential for aircraft accidents is so high here that land use restrictions prohibit any reasonable economic use of the land within the CZ area.
- **APZ I.** APZ I consists of an area 3,000 feet wide by 5,000 feet long adjacent to each CZ. The potential for aircraft accidents is less critical within APZ I than within the CZ but it is still substantial. Guidance on land use within the APZ I permits reasonable economic uses (e.g., construction of roads, automobile parking areas, utilities or outdoor recreation areas). However, transmission lines or any other above ground level construction that obstructs airspace are not permitted.
- **APZ II.** APZ II consists of an area 3,000 feet wide by 7,000 feet long, adjacent to APZ I. APZ II possesses a lower potential for aircraft accidents, but the risk of accidents is still present. People-intensive buildings should not be permitted within the APZ II.

Hazards to Navigation. Regulation of height and obstruction criteria around military airfields is under the jurisdiction of the FAA. Where such criteria are not included in civilian community land use planning, the possibility exists for uses that would endanger the safety of aircraft operations. Objects that are higher than those permitted under the criteria create hazards to safe air operations. Several safety zones are defined by distance from the runway and permitted height. These three-dimensional planes extend above ground level and delineate boundaries into which objects (e.g., equipment, poles, buildings, fences, trees) should not penetrate.

Other Hazards. In addition to physical obstructions that may be erected within the airspace, other uses also create conditions hazardous to aircraft operations, unless land use is controlled. Such uses include:

- Activities that release substances into the air such as steam, dust, or smoke that may impair the visibility of aircrew members. Examples of such activities are industrial plants, refineries, quarries, and sand or gravel pits.
- Objects that produce light emissions, either direct or indirect (reflective) that interfere with the vision of aircrew members. Examples are high intensity strobe lights, extensive areas of glass such as those found in many modern office buildings, and highly reflective artificial surfaces.
- Activities that produce emissions capable of interfering with aircraft communications or navigational systems.
- Activities that tend to attract birds or waterfowl, particularly in large numbers. Such activities include the operation of sanitary landfills, the maintenance of feeding stations, and growing certain types of vegetation, i.e., grain and cornfields.

3.9 HAZARDOUS MATERIALS AND WASTE MANAGEMENT

3.9.1 Definition of Resource

Hazardous materials are identified and regulated under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA); OSHA; and the Emergency Planning and Community Right-to-Know Act. Hazardous materials have been defined in AFI 32-7086, *Hazardous Materials Management*, to include any substance with special characteristics that could harm people, plants, or animals. Hazardous waste is defined in the Resource Conservation and Recovery Act (RCRA) as any solid, liquid, contained gaseous or semisolid waste, or any combination of wastes that could or do pose a substantial hazard to human health or the environment. Waste may be classified as hazardous because of its toxicity, reactivity, ignitibility, or corrosivity. In addition, certain types of waste are listed (i.e., identified) as hazardous in 40 CFR 263. The ROI for hazardous materials and waste management is Holloman AFB.

3.9.2 Hazardous Materials

The majority of hazardous materials used by Air Force and contractor personnel at Holloman AFB are controlled by the hazardous materials pharmacy established at the base in 1993 (49 FW 2004b). This pharmacy tracks products used at Holloman AFB and ensures that they are utilized prior to the expiration of their shelf life. This system also operates a Just-In-Time ordering system to greatly reduce the amount of hazardous materials stored onsite. Most hazardous materials used by Air Force and contractor personnel at Holloman AFB are controlled through the Air Force Pollution Prevention Program Plan (P2 Plan) and Holloman's Hazardous Waste Management Plan (HAFB 1998b). This process provides centralized management of the procurement, handling, storage, and issuing of hazardous materials and turn-in, recovery, reuse, or recycling of hazardous materials. Development of these plans includes review and

approval by Air Force personnel to ensure that users are aware of exposure and safety risks. Base management plans further serve to ensure compliance with applicable federal, state, and local regulations.

Aircraft flight operations and maintenance, as well as installation maintenance, require the storage and use of many types of hazardous materials, such as flammable and combustible liquids. These materials include acids, corrosives, caustics, glycols, compressed gases, aerosols, batteries, hydraulic fluids, solvents, paints, pesticides, herbicides, lubricants, fire retardants, photographic chemicals, alcohols, and sealants.

3.9.3 Hazardous Waste

Holloman AFB is a large-quantity hazardous waste generator, generating more than 2,200 pounds of nonacute hazardous waste per month. Hazardous wastes are generated from a variety of functions on base, including aircraft and vehicle operations and maintenance; medical and dental facilities; cleaning and degreasing operations; and various maintenance and paint operations. These wastes include solvents, paints and paint-related material, absorbent material, rags and debris, blast material and expired shelf-life material. Holloman AFB recycles all lubricating fluids, batteries, oil filters, and shop rags. Hazardous wastes generated are managed in accordance with the *Holloman AFB Hazardous Waste Management Plan* (HAFB 1998b). This plan is currently being updated and is expected to be finalized in the near future.

Initial accumulation point (IAP) managers are responsible for properly segregating, storing, characterizing, labeling, marking, packaging, and transferring all hazardous wastes for disposal from the IAP to the established 90-day storage area according to federal, state, local, and Air Force regulations. The Hazardous Waste Program Manager is responsible for characterizing and profiling each waste stream. There are approximately 42 hazardous waste IAPs located at Holloman AFB, though the present number may vary with changes in operational procedures and management practices. Approximately 96,500 pounds of hazardous wastes were disposed of in FY 2003.

Holloman AFB has one less-than-90-day site (Building 149), which allows the base to store hazardous waste for up to 90 days before transfer to the DRMO. The 90-day site is currently operated by a contractor, with the base retaining quality control of the site. Hazardous wastes generated on base and not stored in an IAP must be characterized, profiled and moved to the 90-day site the same day it is rendered as waste. Wastes generated on base managed under regulations set forth in Holloman AFB's RCRA Part B permit. Holloman AFB also holds an RCRA permit for handling the disposal and treatment of waste munitions.

3.9.4 Storage Tanks

There is currently one underground storage tank managed by Holloman AFB. This tank is a fiberglass, double-walled petroleum, oils and lubricants (POL) tank that was built in 1998, and complies with all regulatory requirements. There are 37 above-ground storage tanks (ASTs) located at Holloman AFB. All storage tanks at Holloman AFB are in compliance with applicable state and federal regulations. Storage tanks located near proposed WINDO construction sites are listed in **Table 3-15**.

Table 3-15. Storage Tanks within the Construction and Demolition Areas

<i>Tank ID</i>	<i>Tank Type</i>	<i>Status</i>	<i>Size (gallons)</i>	<i>Fuel</i>
12303-1	AST	Active	1,600	Diesel
12303-2	AST	Active	1,600	Gasoline
12303-3	AST	Active	3,000	JP-8
304-1	AST	Active	528	Used oil
231	AST	Active	528	Used oil

AST = Above-ground storage tank

Source: HAFB 2004c

3.9.5 Asbestos

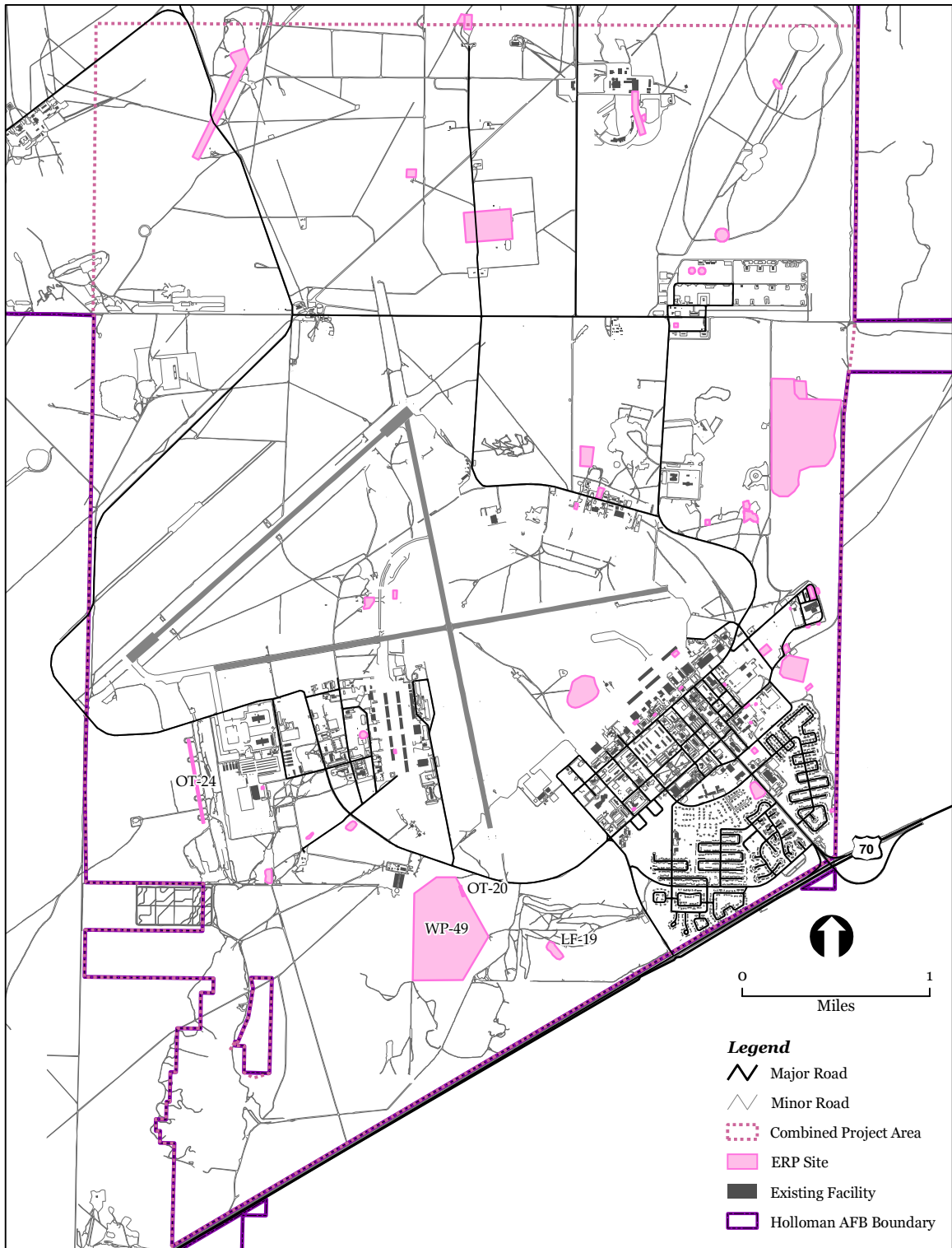
Asbestos containing materials (ACMs) are those materials that contain greater than 1 percent asbestos. Friable, finely divided, and powdered wastes containing greater than 1 percent asbestos are subject to regulation. A friable waste is one that can be reduced to a powder or dust under hand pressure when dry. Nonfriable ACMs, such as floor tiles, are considered to be nonhazardous, except during removal and/or renovation, and are not subject to regulation.

An asbestos management plan provides guidance for the identification of ACMs and the management of asbestos wastes. An asbestos facility register is maintained by 49th Civil Engineering. The design of building alteration projects and requests for self-help projects are reviewed to determine if ACMs are present in the proposed work area. ACM wastes are removed by contractor and disposed of in accordance with state and federal regulations.

3.9.6 Environmental Restoration Program

The DoD developed the ERP to identify, investigate, and remediate potentially hazardous material disposal sites that existed on DoD property prior to 1984. Sixty-four ERP sites, eight Areas of Concern (AOCs), and 106 SWMUs have been identified at Holloman AFB and are regulated under CERCLA. Of the 64 sites, 36 have been closed with no further response action planned; nine are site closed with remedial action-operations; 15 are closed with long-term monitoring or require no further action; three are in the preliminary assessment/site investigation stage; and one is in the remedial design stage. The *Environmental Restoration Program Management Action Plan* (HAFB 2003a) summarizes the current status of the base environmental programs, including SWMUs and AOCs, and presents a comprehensive strategy for implementing actions necessary to protect human health and the environment. This strategy integrates activities under the ERP and the associated environmental compliance programs that support full restoration of the base.

ACC policy requires that any proposed project on or near a Holloman AFB ERP site be coordinated through the Holloman ERP Manager. Construction and demolition would take place at or near ERP sites OT-24, LF-19, OT-20, and WP-49. These sites are shown on **Figure 3-6**.



Note: ACC = Air Combat Command; ERP = Environmental Restoration Program

Sources: HAFB n.d. a,c,d,l

Figure 3-6. Environmental Restoration Program Sites Near the Combined Project Area on Holloman AFB

ERP Site OT-24 is a former equipment maintenance area located in the western part of the base. This site is in Buildings 920, 921, 922, 923, and 924 and covers an area approximately 14 acres in size. Waste solvents, cleaners, and oils from industrial operations used from 1959 to 1970 may have been discharged to the septic tanks that serviced this area. Buildings 920, 921, and 922 are used primarily for storage while Buildings 923 and 924 are still used for industrial operations. This site is vegetated with grasses and sagebrush and contains six monitoring wells. No releases of hazardous substances into the groundwater have been confirmed. The Decision Document (DD) for closure of this site with No Further Action was signed by the base in FY 2000.

ERP site LF-19 is a landfill located south of the golf course that operated from 1968 to 1978. Grass clippings and unused rodenticides were dumped at this site. Three monitoring wells are located at this site. Although soil samples were not collected for chemical analysis, no pesticides were detected in groundwater. Excavation of debris and investigation for collection of confirmation samples are scheduled for 2005, and a petition foreclosure is planned for 2006.

ERP Site OT-20 is the wastewater treatment plant grit burial site located at the head of the sewage treatment lagoons. Small amounts of solvents and heavy metals may have been associated with the grit materials. Three pits were identified to be approximately 2 feet wide and 40 feet long, with varying depths, and little vegetation. Samples collected revealed elevated levels of metals, pesticides, polychlorinated biphenyls (PCBs) and dicamba. No monitoring wells are located at the site. OT-20 was petitioned for closure in 1999. The petition was denied. Additional investigation and coordination with state regulators is required.

ERP Site WP-49 is a sewage lagoon located in the southern portion of the base. There are seven lagoons within the system totaling over 100 acres in size. The treatment system receives approximately 1.3 million gallons of domestic and industrial wastewater each day. Volatile organic compounds, semi-volatile organic compounds, pesticides, PCBs and metals are known to have been discharged into the sewage treatment system. In 1985, the Environmental Protection Agency and NMED identified the seven sewage lagoons as Hazardous Waste Management Units. In July 1989, an RCRA groundwater monitoring system was installed, and a monitoring well network was installed at the site indicating low levels of organochlorine pesticide compounds in the groundwater. All hazardous waste discharged to the lagoons has been stopped and a new wastewater treatment plant went online in July of 1996. Cleanup of PCB-contaminated sludge took place in 1990; an Intermediate Remedial Assessment was performed in late 1996; the Remedial Design/Remedial Action phase was completed in mid-1998; and soil cover placement Remedial Action was completed in 1998. A DD closing the site with Long-Term Management was signed in FY 2000; however, NMED has since released the base from Long-Term Management requirements.

3.10 INFRASTRUCTURE

3.10.1 Definition of Resource

The infrastructure elements at Holloman AFB include the utility systems that service all areas of the base. There are a number of utility systems on the base that provide potable water, electricity, heating and cooling, and liquid fuels; and systems that take away wastewater and storm water drainage. The ROI for these resources consists of Holloman AFB and the area that is supplied potable water by the City of Alamogordo.

3.10.2 Existing Utility Infrastructure

3.10.2.1 Electrical Distribution

Holloman AFB receives power from two separate utility companies, El Paso Electric Company and Otero County Rural Electric Cooperative. The Otero County Rural Electric Cooperative provides power to approximately one-half of the base housing area. El Paso Electric Company provides service using a 115 kilovolt (kV) switching station located near the main gate. The El Paso Electric 115 kV line is run to three 115 kV/13.2 kV substations (Main, North and Atlas) on the base. The Main and North substations are currently capable of providing power to the entire base and the overall system capacity is approximately 65 mega volt-ampere (MVA) (49 FW 2004b). The current total base system loads have a historical peak average of 21 MVA.

El Paso Electric Company provides power to 324,100 customers in southern New Mexico, including Holloman AFB and the City of El Paso, Texas. In 2003, the last year of available data, El Paso Electric supplied 8,991,630 megawatt-hours of energy with a peak load of 1,546 megawatts (EPEC 2004).

3.10.2.2 Potable Water

Holloman AFB relies on off-base sources of groundwater and surface water to provide potable water to base personnel. Groundwater is obtained from five wellfields: the Boles, Escondido, San Andreas, Frenchy, and Douglas wellfields. A total of 15 groundwater wells draw water from the Bolson Aquifer located in the Tularosa Basin and are the primary source of potable water year-round (HAFB 2003b). There are two ground level storage tanks with a total storage capacity of 0.9 million gallons (MG) associated with the well fields. These two tanks feed the Boles Field Pumping Station.

Surface water from Bonito Lake and springs in Fresnal Canyon and La Luz Canyon is transported through the Bonito pipeline to three separate reservoirs at the city of Alamogordo's La Luz water treatment plant. At the La Luz plant, the water is filtered and chlorinated, and potable water for use by Holloman AFB is pumped through the Prather water main to the Boles Field Pumping Station. Potable water is feed to the base from the Boles Field Pumping Station through two separate pipelines for storage, chlorination, and distribution within the base system. Average daily water demand is approximately 2.1 MGD with 8 percent (0.168 MGD) used by the golf course for irrigation (49 FW 2004b).

Potable water storage on-base is provided by three tanks (Eagle Tower with 0.3 MG; Challenger Tank with 0.4 MG; North Area Tower with 0.25 MG) having a total capacity of 0.95 MG.

3.10.2.3 Sewage

Holloman AFB has operated the existing aeration-activated sludge wastewater treatment plant since 1996. The plant has an extended aeration activated sludge design with a design flow capacity of 1.5 MGD and operates under an NPDES permit NM0029971, effective March 1, 2000, and New Mexico Discharge Plan DP-1127, renewed October 28, 2002 (49 FW 2004b). The treatment facilities consist of an influent pump station, screening, influent flow measurement, and grit removal, aeration basins, secondary clarification, chlorination, dechlorination, and effluent flow measurement. Solids handling facilities at the treatment plant include aerobic digestion and paved sludge drying beds. Peak flow capacity of the treatment plant is 4.5 MGD. The plant currently treats an average of 1.0 MGD based on FY03 flow data (49 FW 2004b).

The sewer collection system contains a series of gravity collection main, lift stations and force mains which route the wastewater to the base wastewater treatment facility. It is estimated that approximately 30 septic tanks remain in remote areas of the base. The base also maintains 30 to 40 oil/water separators as part of the base's industrial pretreatment program. Effluent from the treatment plant is discharged through a 5,250-foot effluent line to Lake Holloman, Pond G, or the constructed wetlands.

3.10.2.4 Solid Waste

Solid waste generated on Holloman AFB is removed by South West Disposal and disposed at the Lincoln/Otero County Regional Landfill. Although, the Holloman AFB Landfill was closed in 1996, the site is still actively monitored. South West Disposal also operates the recycling program for Holloman AFB. In FY 2003, Holloman AFB generated approximately 6,079 tons of solid waste. Approximately 1,956 tons were recycled, 364 tons were composted, 63 tons were mulched, 288 tons were reused and 5 tons were donated. Solid waste at Holloman AFB is managed according to the *Holloman AFB Solid Waste Management Plan* (HAFB 2004d). Lincoln/Otero County Regional Landfill is a New Mexico permitted solid waste facility designed to dispose of residential, commercial and construction waste. In 1999, this facility received approximately 1,622 cubic yards of waste of all types. With a total capacity of about 124,226 cubic yards (NMED 2000a), it has a remaining useful life of approximately 67 years (based on solid waste statistics, FY 2000).

3.10.2.5 Storm Drainage System

Stormwater, typically generated in the arid climate of central New Mexico during the months of June through October, is conveyed through drainage channels, underground piping (storm sewer), and, in a few areas, by sheet flow on Holloman AFB. Base topography slopes slightly to the south-southwest and, correspondingly, storm water flows in a southerly direction across the base. Base storm water discharges are permitted under a NPDES Stormwater Multi-Sector General Permit for Industrial Activities and are managed under the base's SWPPP. Fourteen drainage areas, synonymous with *outfall tributary areas* or *outfall areas*, have been delineated for the areas of the base containing industrial activities. Eleven of these drainage areas have been identified as contributing to distinct discharges from the Holloman AFB to Waters of the U.S. (e.g., wetlands and flowing, and intermittently flowing, rivers, creeks, or streams). Two of the

remaining drainage areas discharge to depressions in the ground (located on base) where storm water evaporates or percolates into the ground. A fourteenth drainage area drains mainly by sheet flow towards Waters of the U.S. (HAFB 2001).

Waters of the U.S. that receive discharges from the identified drainage areas include Lake Holloman, Dillard Draw, Lost River, Ritas Draw, and three unnamed wetlands. Land development/construction sites disturbing one acre or more require an NPDES Stormwater General Permit for Small Construction. Each site must be covered by a site-specific SWPPP that addresses BMPs to reduce introduction of sediment and pollutant into the storm water.

3.10.2.6 Heating and Cooling Systems

Holloman AFB provides heat and cooling to its facilities from individual systems. There is no central heating or cooling systems installed on base. Natural gas is used primarily for space heating, incineration, hot water heaters, and small gas furnaces. PNM Gas Services is the Holloman AFB contracted local distribution company responsible for transferring the gas from the El Paso Natural Gas pipeline to the base. The base receives natural gas from PNM Gas Services near US 54. The pipe serving the base has a mainline pressure of 45 pounds per square inch. In the period between January 2003 and December 2003, the base purchased 339,649 million cubic feet. On base, the gas lines, upgraded to polyethylene lines in 1987 through 1989, are looped in a continuous system to provide service to the main area, the west area, and the north area.

3.10.2.7 Liquid Fuels

Liquid fuels systems at Holloman AFB include all fuel delivery, storage and distribution systems for JP-8, unleaded gasoline, and diesel fuel. The base's JP-8 fuel system is supplied from two above-ground storage tanks with a capacity of approximately 1.5 MG, which is refilled from an offsite pipeline or by tanker truck. Additional above ground storage tanks support the West Hydrant system and the GAF Hydrant system. The POL Bulk Fuel Storage Area also has the capacity to store approximately 34,000 gallons of diesel fuel and 12,000 gallons of unleaded gasoline.

3.10.2.8 Communications System

Holloman AFB has installed extensive communications connectivity and bandwidth that allows the installation to provide local telephone service, maintain a Local Area Network of one or several interconnected computer networks, connect to long-haul communication systems, and operate wireless voice (radio) networks in the local area.

The Holloman AFB Communication Systems are comprised of the following subsections (49 FW 2004b):

- **Information Transfer System.** This system includes the basic infrastructure conductors and pathways for the distribution of data. These pathways include copper cable, fiber optic cable, and wireless Local Area Network.

- **Telephone Switching System.** This system encompasses all required head-end equipment for the base telephone system including the telephone switch, main distribution frame, and service providers.
- **Data Communications.** Data communications systems utilized on base are Unclassified Network, Classified Network (SIPRNET), and the Defense Messaging System.
- **Long Haul Communications.** This system infrastructure (T-1 and T-3 lines) connects Holloman AFB to other bases and DoD Installations.
- **Radio Systems.** This subsection includes radio frequency systems and microwave systems.
- **Flight Support Systems.** This system includes the Air Traffic Control and Landing System including radar equipment, navigational aids, meteorological systems, voice communications, and radio switching systems.
- **Video Systems.** This section includes the video editing workstations and the Video Teleconference System.

4.0 ENVIRONMENTAL CONSEQUENCES

Chapter 4 presents the environmental consequences of the Base Plus Prather Alternative, Base Only Alternative, and the No Action Alternative for each of the resource areas discussed in Chapter 3. This chapter evaluates the project elements described in Chapter 2 in the context of the affected environment provided in Chapter 3.

4.1 PHYSICAL RESOURCES (SOILS AND WATER)

4.1.1 Methodology

Construction effects on physical resources include soil erosion and potential geologic hazards. Environmental consequences are avoided through proper construction techniques, erosion control measures, and structural engineering designs. The suitability of locations was reviewed for this EA to determine whether earth disturbance would expose soil to wind or water erosion. Additional paved areas and roofs could contribute to increased storm water runoff.

Water resources are evaluated by water availability (Section 4.10), water quality, and adherence to applicable regulations. Surface water quality could be impacted if soils susceptible to water erosion contribute sediment to surface water. Wind erosion at construction sites could affect air quality. There are no designated floodplains in the project areas.

The NMED Surface Water Quality Bureau and the USACE are the regulatory agencies that govern water resources in the State of New Mexico. The CWA of 1977 regulates pollutant discharges and development activities that could affect aquatic life forms or human health and safety.

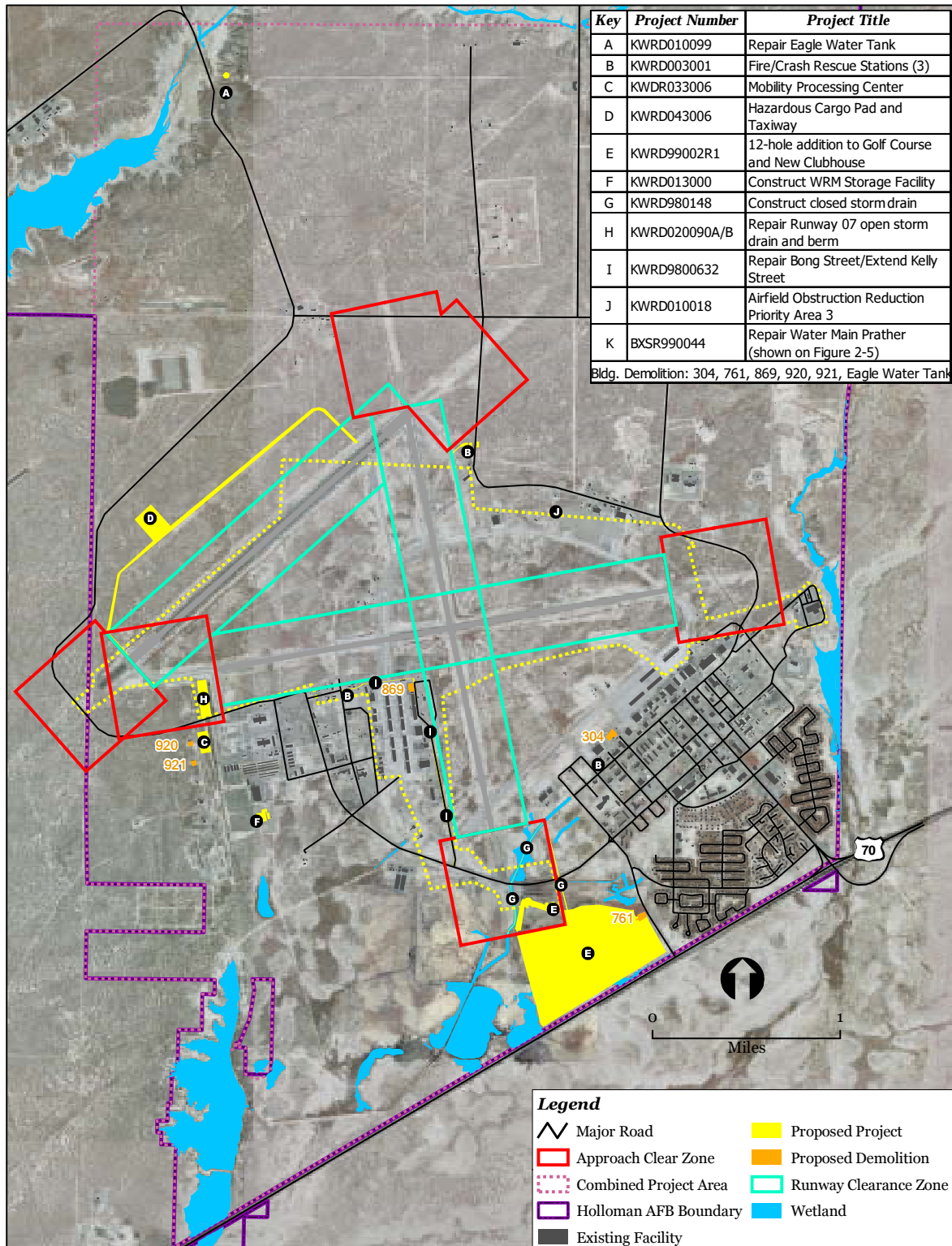
4.1.2 Base Plus Prather Alternative

4.1.2.1 Holloman AFB

This alternative constructs 10 proposed projects with approximately 39 acres of new impervious surfaces. The total on-base acreage that would be disturbed for all construction and demolition areas would be 292 acres over the 3-year period under consideration. Only a portion of the total acreage would be disturbed in any one year.

Figure 4-1 shows the location of projects in relation to wetlands. The Closed Storm Drain project would eliminate 11 acres of wetlands within the CZ. Under the optional alignment of the storm drain project, the storm drain would route its flow to other wetlands in the golf course area, supplementing their water supply. This would enhance the water supply to other wetlands and add approximately 2.4 acres of open drain along the eastern boundary of the CZ. This new open drain may become wetland over time, eventually reducing the total acreage of wetlands eliminated to 8.6 acres under the optional alignment.

A permit from the USACE to excavate or fill wetlands is required under Section 404 of the CWA. A state water quality certification under Section 401 of the CWA may also be required by the Surface Water Quality Bureau (NMED 2000b). No construction of buildings or other obstructions are proposed along the intermittent streams.



Note: AFB = Air Force Base

Sources: HAFB n.d. a,c,d,e,f,g,j,k

Figure 4-1. Location of Proposed WINDO Projects on Holloman AFB Relative to Wetlands

In compliance with the requirements of the NPDES Storm Water General Permit for Small Construction, a site-specific Stormwater Pollution Prevention and Erosion and Sediment Control Plan would be developed for each construction project disturbing over one acre of ground. Each plan would identify BMPs appropriate for each site (see Appendix C) and steps to minimize wind erosion, to reduce offsite sedimentation due to water erosion, and to keep increases in surface water runoff to a minimum. After construction has been completed, all disturbed areas would be stabilized by recontouring and revegetating, using a combination of native plants and gravel ground cover as part of a xeriscape plan. The recontouring and revegetation would minimize erosion and improve infiltration of precipitation.

Holloman AFB is relatively flat and most construction sites would not need cut and fill. The site for the proposed MPC facility would be built using soil from the nearby berm along Runway 07. Other borrow sites on Holloman AFB could also be used. Base soils pose few hazards or limitations to construction of proposed buildings or roads. Potential secondary effects from surface-disturbing activities, such as increases in storm water runoff or off-site sedimentation, would be minimized through the installation and maintenance of BMPs, landscaping around buildings on the base, and site revegetation and stabilization in more remote areas such as Eagle Water Tank.

Approximately 39 acres of additional impervious surface from new buildings and parking lots have the potential to increase storm water runoff. This additional storm water runoff would be managed to keep quantities to predevelopment conditions where practicable. The existing storm ditch on the base would be expected to handle additional flows in most areas, although portions of the existing storm water drainage system are close to exceeding capacity. During summer storms, flooding may increase or become more frequent in areas that already experience ponding. The NPDES Multi-Sector General Permit for Industrial Activities and the associated SWPPP would be reviewed for additions and modifications in conjunction with the on-base projects. Excavation, mixing natural soil layers, or heavy equipment impaction would have localized effects and would not result in significant secondary impacts to wind or water resources. The elimination of 8.6 to 11 acres of wetlands would not be considered significant, as long as there is compliance with the requirements and terms of state water quality certification (Section 401 of the CWA) and/or federal permits (Section 404 of the CWA).

Practices to minimize soil loss and downstream sedimentation would result in no expected impacts to water quality. Runoff from new impervious areas would be designed to comply with NPDES Storm Water General Permit for Small Construction criteria and minimize any potential source of surface water pollutants. No impacts to soil resources, nor surface or groundwater resources are therefore anticipated.

4.1.2.2 Prather Water Main

Under all options, the existing concrete and steel water pipeline would be replaced by PVC pipe. The area of disturbed soil would be approximately 7 to 10 acres, depending on the option selected. A site-specific Stormwater Pollution Prevention and Erosion and Sediment Control Plan would be developed to comply with the requirements of the EPA-administered NPDES Storm Water General Permit for Small Construction. Construction would be on gently sloping

terrain with no downstream water bodies. BMPs would minimize soil erosion, and the disturbed areas would be regraded and stabilized soon after construction. Where soils have high concentrations of gypsum, fill can settle and trenches may cave in as the gypsum dissolves. This is especially prevalent in the Aztec gravelly fine sandy loam soil map unit that may be present along Hamilton Road (SCS 1981). This limitation would be addressed in construction methods used during pipe installation. Few onsite or offsite impacts to soils or water resources would be anticipated under any of the Prather water main options.

4.1.3 Base Only Alternative

Under this alternative, total ground disturbance from implementing WINDO projects be as described in Section 4.1.2.1. All construction activity on the base would be the same as under the Base Plus Prather Alternative. Removal and replacement of Prather water main would not take place at this time. Therefore, no change to physical conditions would result along Prather water main.

4.1.4 No Action Alternative

Under the No Action Alternative, no construction would occur and no new impacts to physical resources would result. Conditions would remain as described under the Affected Environment section.

4.2 BIOLOGICAL RESOURCES

4.2.1 Methodology

Impacts are based upon (1) the importance (legal, commercial, recreational, ecological, or scientific) of the resource; (2) the rarity of a species or habitat regionally; (3) the sensitivity of the resource to proposed activities; and (4) the duration of the impact. Impacts to biological resources are considered to be greater if priority species or habitats are adversely affected over relatively large areas or disturbances cause reductions in population size or distribution of a priority species.

4.2.2 Base Plus Prather Alternative

Planned construction is mainly in developed areas of Holloman AFB. Some of the proposed construction and demolition sites either have buildings surrounded by pavement or lawn or contain landscaped vegetation. Vegetation at construction sites either consists chiefly of invasive non-native species, such as saltcedar, or natural vegetation that is extensive on base. The main biological consequence is the projected overall loss of 11 acres of wetland.

4.2.2.1 Holloman AFB

Terrestrial Communities

There would be no impacts to vegetation outside the proposed project areas. BMPs during demolition and construction would minimize impacts to vegetation at and near the demolition and construction sites. New construction is planned in both heavily developed and less developed areas where the vegetation is dominated by four-wing saltbush with a large representation of weeds (e.g., African rue). Disturbed areas would be reseeded with appropriate

native seed mix to inhibit the spread of invasive weeds. Because four-wing saltbush is widespread on Holloman AFB, it and its attendant wildlife would likely not be negatively affected. Wildlife that are using the proposed construction areas consist of species already adapted to human-dominated environments. Wildlife using the golf course (e.g., quails, cottontails) would not be impacted by construction and demolition activities affecting only a portion of the golf course. It is likely that these species would benefit in the long term from the expansion of the golf course.

Wetland and Freshwater Aquatic Communities

A total of 11 acres of wetlands would be eliminated for on-base projects located within the CZ. The existing open storm drain at the south end of Runway 07/25 is partially within the runway CZ. New pipe would be installed underground, and saltcedar, which is the dominant plant, would be removed mechanically and with application of herbicides on remaining stumps. The open ditch would be filled in with soil and graded, and the area would be revegetated with native seed mix. At the outfall, a rock apron would be placed in the existing open ditch to minimize erosional force of water in the ditch.

Although classified as a wetland, the ditch to be affected has little value for native plants and wildlife. It normally holds water and is used for nesting by teals. The vegetation consists of monotypic stands of saltcedar with low wildlife diversity (Rosenberg et al. 1991). Some bird species have been documented nesting or extensively using wetlands with native emergent vegetation. The ditch does not provide comparable habitat. The loss of wetlands along the ditch would have little impact on habitat or wildlife.

There are several ponds and ditches lined with wetland vegetation in the general area of proposed construction. Potential minor impacts to wetlands downstream from the ditch seem unlikely. The installed pipe would likely increase flow of water downstream, potentially increasing the acreage of some of the already existing wetlands. If the optional alignment for a new open storm drain along the edge of the CZ were constructed, direct flow of storm water to wetlands in the golf course could expand these wetlands and minimize wetland loss. The Section 404/401 permitting process (discussed in Section 4.1.2.2) would define actions to be undertaken by Holloman to address the loss. In addition, letters received from U.S. Fish and Wildlife Service and the New Mexico Department of Game and Fish following review of the Draft EA specify mitigations measures to compensate for the loss of wetlands. Holloman is committed to complying with the provisions of these agencies and any defined during the permitting process. The letters are included in Appendix B.

After implementing the on-base projects in the CZ, the risk of bird collisions could decrease. Wetlands could increase in size downstream from the ditch where there is a lower risk of collision. The risk of collision is highest near the end of the runway. Any potential increase in the size of downstream wetlands would be offset by closure of the ditch near the end of the runway.

Threatened, Endangered and Special Status Species

Most of the sensitive species occurring or potentially occurring on Holloman AFB have not been documented in the project area. Such species would be very unlikely to depend on any of the already developed or heavily disturbed proposed construction or demolition sites. Only the Texas horned lizard (a federal species of concern) occasionally occurs in the project area, but effects on this species would be negligible, as its shrubland habitat is widespread on Holloman AFB. U.S. Fish and Wildlife Service and the New Mexico Department of Game and Fish have communicated issues to consider for this action. Upon review and accounting for measures undertaken as part of this action, no significant impacts to threatened, endangered, or sensitive species or habitats would result.

4.2.2.2 Prather Water Main

The Prather water main is situated along a road lined with vegetation typically found in disturbed areas. Wildlife in the area likely consists of species adapted to a human-dominated environment. For these reasons, no negative impacts to plants and wildlife are expected along the Prather water main. Disturbed areas would be reseeded with appropriate native seed mixes to control the spread of invasive weeds.

4.2.3 Base Only Alternative

Under this alternative, biological resource consequences would be the same as described in Section 4.2.1.1. No changes would result along Prather water main.

4.2.4 No Action Alternative

Under the No Action Alternative, no construction or impacts on biological resources would occur. Conditions would remain as described in Section 3.2. The risk of collisions between birds and airplanes is discussed in the Cumulative Effects section of the document.

4.3 AIR QUALITY

4.3.1 Methodology

Air emissions resulting from the implementing the proposed WINDO projects were evaluated in accordance with federal, state, and local air pollution standards and regulations. The air quality impacts from a proposed activity or action would be significant if they:

- Increase ambient air pollution concentrations above any NAAQS;
- Contribute to an existing violation of any NAAQS;
- Interfere with or delay timely attainment of NAAQS; or
- Impair visibility within any federally mandated PSD Class I area.

According to the EPA General Conformity Rule in 40 CFR Part 51, Subpart W, any proposed federal action that has the potential to impact air quality in a NAAQS nonattainment or maintenance area must undergo a conformity analysis. A conformity analysis is not required in an attainment area. Since Otero County is currently designated as attainment areas for all criteria air pollutants, a conformity analysis is not required.

Section 169A of the CAA established the PSD regulations to protect the air quality in regions that already meet the NAAQS. Certain national parks, monuments, and wilderness areas have been designated as PSD Class I areas, where appreciable deterioration in air quality is considered significant. According to the New Mexico Air Quality Bureau (NMAQB), any proposed action that includes primarily fugitive dust and mobile source emissions, including impacts to visibility, would not be covered under state or federal PSD regulations (Wunker 2001). The nearest PSD Class I area is approximately 43 miles from the Holloman AFB.

4.3.2 Base Plus Prather Alternative

4.3.2.1 Holloman AFB

The Base Plus Prather Alternative involves construction, demolition, trench work, paving activities, and construction of new structures.

Construction Emissions. Calculations of VOC, NO_x, CO, and PM₁₀ emissions from construction, grading, and paving activities were performed using EPA emission factors compiled in the *California Environmental Quality Air Quality Handbook* (SCAQMD 1993); *Calculations Methods for Criteria Air Pollution Emission Inventories* (Jagielski and O'Brien 1994); and *Air Emissions Inventory Guidance Document for Mobile Sources at Air Force Installations* (O'Brien and Wade 2002). The emission factors for building construction include contributions from engine exhaust emissions (i.e., construction equipment, material handling, and workers' travel) and fugitive dust emissions (e.g., from grading activities). Demolition emissions would include fugitive dust and transport of demolition debris offsite. Trenching and grading emissions would include fugitive dust from ground disturbance, plus combustive emissions from heavy equipment from trench work during the entire construction period. Paving emissions would include combustive emissions from bulldozers, rollers, and paving equipment, plus emissions from a dump truck hauling pavement materials to the site. Estimated emissions that would occur from construction, demolition, grading, trench work, and paving activities under the Base Plus Prather Alternative are presented in **Table 4-1**. The emissions shown would occur over the duration of the construction period and would be spread over at least three calendar years (facilities construction is proposed to be distributed over the period from 2005 to 2007). The projected emissions would fall within 2 and 14 percent of current emissions for Holloman in 2003. Because some level of construction and redevelopment is ongoing at the base, current emissions include some level of contribution from this source. Therefore, projected emissions that fall within 2 to 14 percent of current levels for criteria pollutants may not represent increases over current levels.

Emissions generated by construction, demolition, and paving projects are temporary in nature and would end when construction is complete. The emissions from fugitive dust (i.e., PM₁₀) would be considerably less than those presented in Table 4-1 due to the implementation of control measures in accordance with standard construction practices. For instance, frequent spraying of water on exposed soil during construction, proper soil stockpiling methods, and prompt replacement of ground cover or pavement are standard landscaping procedures that could be used to minimize the amount of dust generated during construction. Using efficient practices and avoiding long periods where engines are running at idle could reduce combustion

emissions from construction equipment. Vehicular combustion emissions from construction worker commuting may be reduced by carpooling. Table 4-1 presents a worst-case scenario and, therefore, annual emissions would be lower than those shown in Table 4-1.

Table 4-1. Temporary Construction Emissions—Base Plus Prather Alternative

<i>Source</i>	<i>Emissions (In Tons)</i>				
	<i>CO</i>	<i>VOC</i>	<i>NO_x</i>	<i>SO_x</i>	<i>PM₁₀</i>
Construction	17.3	5.4	79.4	0.0	5.6
Demolition	0.7	0.1	0.7	0.0	0.3
Grading/Trenching	2.4	0.6	3.0	0.3	8.4
New Pavement	5.8	1.2	12.1	0.9	0.8
TOTAL¹	26.3	7.3	95.1	1.2	15.1
Percent current annual emissions	2	2	14	8	13

CO = Carbon monoxide; NO_x = Nitrogen oxides; PM₁₀ = Particulate matter; SO_x = Sulfur oxides;
VOC = Volatile organic compounds

Note: ¹ Total may not add up due to rounding.

Sources: Jagielski and O'Brien 1994; O'Brien and Wade 2002; SCAQMD 1993

In general, combustive and fugitive dust emissions would produce localized, short-term elevated air pollutant concentrations, which would not result in any long-term impacts on the air quality in Otero County (AQCR 153). The temporary construction-related emissions of PM₁₀ and SO_x are not expected to adversely impact the air quality or visibility in any of the PSD Class I areas in the vicinity of the base.

Operational Emissions. Air emissions after completion of the on-base projects would be expected to be equal to or less than current operations. Sources that would be removed due to demolition of current facilities would be replaced by new, more efficient equipment with lower emissions than used in the current buildings. New construction would result in the installation of building heaters, boilers, and generators, but, based on a review of available information, none of these sources would require air permits or trigger modification to the base's current air permits (USAF 2005).

There are no expected increases in operational emissions at Holloman AFB as a result of the projects on base.

4.3.2.2 Prather Water Main

Construction along the Prather water main would produce temporary emissions from trenching and grading during the removal and installation of pipeline. These operations account for about 3 percent of the grading and trenching emissions in Table 4-1. These emissions would be localized, temporary, and short term. They would, therefore, not result in long-term impacts on air quality.

4.3.3 Base Only Alternative

The total emissions would be essentially the same as those in the Base Plus Prather Alternative (see Table 4-1). The reduction in emissions without installing the Prather water main is insignificant. There would be no temporary or short-term effects along Hamilton Road.

4.3.4 No Action Alternative

Under the No Action Alternative, no construction emissions would occur and operational emissions would be identical to current baseline presented in Chapter 3.

4.4 NOISE

4.4.1 Methodology

Noise is unwanted sound. Potential changes to the existing noise environments would result from demolition and construction. This change would affect the exposed human population as well as wildlife. Potential changes in the noise environment can be beneficial (i.e., if they reduce the number of sensitive receptors exposed to unacceptable noise levels), negligible (i.e., if the total area exposed to unacceptable noise levels is essentially unchanged), or adverse (i.e., if they result in increased exposure of sensitive receptors to unacceptable noise levels).

4.4.2 Base Plus Prather Alternative

4.4.2.1 Holloman AFB

Vehicles and equipment involved in demolition, facility construction, and finishing work would generate the primary noise from this action. The typical noise levels generated by these activities range from 75 to 89 dBA at 50 feet from the source. Assuming that noise from the heavy equipment radiates equally in all directions, the sound intensity diminishes inversely as the square of the distance from the source. Therefore, in a free field (no reflections of sound), the sound pressure level decreases 6 dB with each doubling of the distance from the source. **Table 4-2** illustrates the anticipated sound pressure levels at a distance of 50 feet for miscellaneous heavy equipment.

Construction noise would be intermittent and short-term in duration with projects usually lasting from three to six months. The distance to off-base sensitive receptors in the vicinity of the short-term construction activities would be greater than 1,000 feet (with the exception of earth-moving activities for the new golf course). Assuming a maximum noise level of 103 dBA measured 50 feet from the source for some demolition work and high 80s for earth moving, the distances from each of the project areas to off-base sensitive receptors would be sufficient to allow noise levels to naturally attenuate to levels within existing conditions at the installation.

Table 4-2. Heavy Equipment Noise Levels at 50 Feet

<i>Equipment Type¹</i>	<i>Number Used¹</i>	<i>Generated Noise Levels L_p (dBA²)</i>
Bulldozer	1	88
Backhoe (rubber tire)	1	80

<i>Equipment Type¹</i>	<i>Number Used¹</i>	<i>Generated Noise Levels L_p (dBA²)</i>
Front Loader (rubber tire)	1	80
Dump Truck	1	75
Concrete Truck	1	75
Concrete Finisher	1	80
Crane	1	75
Flat-bed Truck (18 Wheel)	1	75
Scraper	1	89
Jack hammer and rock drills	1	90
Impact pile drivers, peak	1	103
Trenching Machine	1	85

Notes: ¹ Estimates based on typical construction scenario

²Typical average noise level

Source: AIHA 1986; EPA 1972

The proposed projects on Holloman AFB would be located in noise compatible areas for their particular noise exposure. **Table 4-3** shows the compatibility of the proposed WINDO construction projects within the noise environment. **Figure 4-2** shows the location of projects relative to noise exposure levels at Holloman airfield. Land use compatibility guidelines established by the Air Force's AICUZ program and HUD, based on findings of the FICON, were used to evaluate whether the proposed new facilities and uses would be located in areas with acceptable noise levels.

Table 4-3. Compatibility of WINDO Construction Projects at Holloman AFB with Noise Exposure Levels

<i>Project Title/ Number</i>	<i>Use</i>	<i>Compatibility</i>	<i>Noise Level (DNL)</i>
Replace Eagle Water Tank (KWRD01009)	Infrastructure, utilities	Compatible	65-70
3 Fire/Crash Rescue Stations (KWRD003001)	Airfield/industrial	Compatible	>77 ¹
Mobility Processing Center (KWRD033006)	Industrial	Compatible	>80 ¹
Hazardous Cargo Pad and Taxiway (KWRD043006)	Airfield	Compatible	70-75
Improvements to Golf Course and New Clubhouse (KWRD99002RI)	Recreation	Compatible	>78 ^{1,2}
Construct War Reserve Materiel Facility (KWRD013000)	Industrial	Compatible	70-75 ¹

<i>Project Title/ Number</i>	<i>Use</i>	<i>Compatibility</i>	<i>Noise Level (DNL)</i>
Construct Closed Storm Drain (KWRD980148)	Infrastructure	Compatible	>80
Repair Runway 07 Open Storm Drain and Berm (KWRD020090A/B)	Infrastructure, utilities	Compatible	>80
Repair Bong Street and Extend Kelly Road (KWRD9800632)	Transportation	Compatible	>80
Airfield Obstruction Reduction Priority Area 3 (KWRD010018)	Infrastructure, utilities	Compatible	N/A

Notes: ¹ May require noise level reduction to achieve desired indoor noise levels through incorporation of noise attenuation measures into the design and construction of the structures. Office areas and areas where public is received require specific attention (USAF 1999; FICUN 1980).

² Outdoor uses for golf course generally not recommended in areas with >80 DNL (USAF 1999).

The current activities for loading hazardous cargo are performed on a ramp on the east side of the airfield. Aircraft are generally at idle power and, therefore, contribute little to the noise environment that is dominated by the noise generated by aircraft engines at high-power mode during take-off and landing. That notwithstanding, the location for the new Hazardous Cargo Pad on the west side of the airfield is advantageously situated farther from base housing areas that are sensitive to high noise levels. The Hazardous Cargo Pad is associated with a QD buffer, which would limit future construction of facilities within 1,200 feet of the pad.

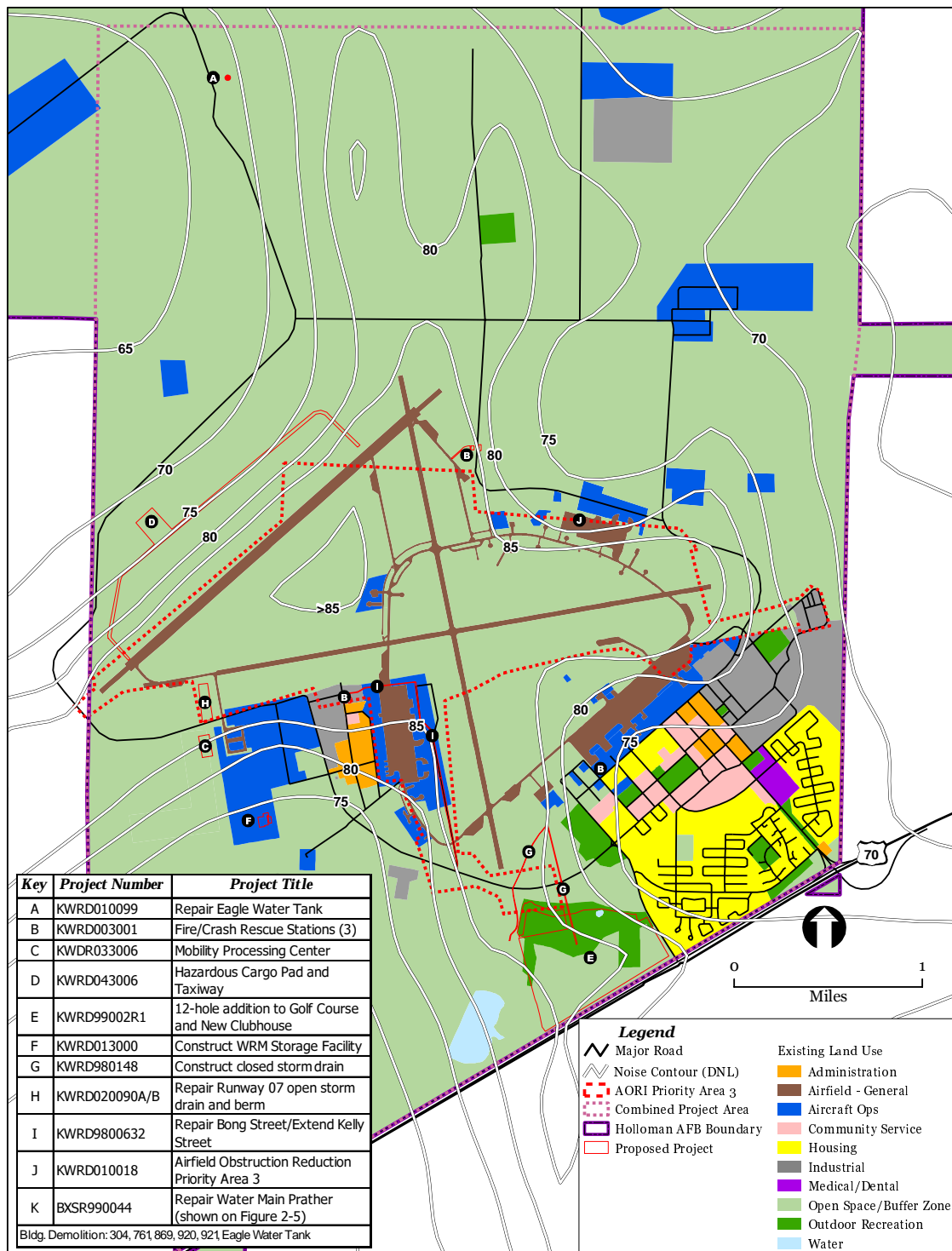
Both the Mobility Processing Center and the WRM storage facility may need to use noise level reduction construction to reduce interior noise levels, particularly in administrative/office areas or areas where public may gather. Golf course facilities are not recommended (although not prohibited) in areas with outdoor noise levels exceeding 80 DNL, as is projected for the golf course expansion areas.

4.4.2.2 Prather Water Main

Noise from crushing concrete pipeline along Hamilton Road could generate considerable noise (i.e., in the range of 89 to 103 dBA). Work in any one location would be limited to a few consecutive days, over a few months for the entire project. Therefore, any temporary effects would not have an impact beyond the short construction and demolition period. Similarly, noise from trucks on Hamilton Road may temporarily raise noise levels in localized areas during construction. No long-term impact would result.

4.4.3 Base Only Alternative

Under this alternative, noise impacts on Holloman AFB would be as described in Section 4.4.2.1 with no appreciable change in the long-term noise environment. There would be no temporary noise effects along Hamilton Road.



Notes: AFB = Air Force Base; AORI = Airfield Obstruction Reduction Initiative; DNL = day/night average sound level

Sources: HAFB n.d. a,c,d,e,h; ACC 2004b

Figure 4-2. Location of Proposed WINDO Projects Relative to Noise Levels and Existing Base Land Use

4.4.4 No Action Alternative

Under the No Action Alternative, construction and demolition projects described in the WINDO EA would not occur. Noise levels would continue under existing conditions and there would be no impact from this resource.

4.5 LAND USE RESOURCES

4.5.1 Methodology

Criteria used to evaluate impacts on land use include:

- Potential for displacement of an existing desired use;
- Disruption of existing or future land use from proposed activities;
- Consistency of the action with Holloman AFB plans, regulations, and guidelines (including the AICUZ program and WINDO guidance) that provide for appropriate development of the land directly affected; and
- Compatibility of the action with plans and management objectives for adjacent areas under control of other entities (e.g., state, local, federal).

4.5.2 Base Plus Prather Alternative

4.5.2.1 Holloman AFB

Table 4-4 compares each project to the criteria listed above. The proposed WINDO projects are consistent with the Holloman AFB General Plan and the WINDO plan, and contribute to achieving the goals for base development. With the exception of the Hazardous Cargo Pad, none of the projects would constrain the use of surrounding areas for similar uses. Proposed new facilities are all functionally consistent with the land use assigned for the proposed sites on Holloman AFB. Several projects improve safety and efficiency of current functions.

The new Hazardous Cargo Pad would impose limits on future land use within the new QD zone (**Figure 4-3**). The new location for the hazardous cargo pad is preferable than the existing cargo loading area because it would separate hazardous activities from other activities. This would benefit efficiency and safety because hot cargo loading would be able to take place without restricting movement on Taxiway L.

Benefits to land use would result from constructing new fire stations at strategic locations for serving the airfield and developed areas of the base. All projects, with the exception of the golf course, are compatible with AICUZ guidelines. Portions of the new MPC, Fire Stations, and WRM storage facility that are used for administrative functions and as public gathering areas may require noise level reduction construction to achieve desired interior noise levels. A reduction of about 20 dB may be applicable for portions of the MPC and Fire Stations. A reduction of about 10 dB would apply to the WRM storage facility. Recreational use for a golf course does not conflict with airfield operations but existing elevated noise levels (greater than 80 DNL) are not optimal for outdoor recreational activities.

Table 4-4. WINDO Projects Land Use Evaluation

<i>Project Title</i>	<i>Land Use assessment</i>
Replace Eagle Water Tank (KWRD01009)	No current use displaced; Improves airfield safety; Consistent with base plans and regulations; No effect on areas under control by other entities.
3 Fire/Crash Rescue Stations (KWRD003001)	No current use displaced; Improves safety through improved emergency response; Consistent with base plans and regulations; No effect on areas under control by other entities.
Mobility Processing Center (KWRD033006)	Displaces obsolete missile assembly mission functions; Improves efficiency through consolidating mission functions; Consistent with base plans and regulations, but may require noise level reduction construction for some indoor areas; No effect on areas under control by other entities.
Hazardous Cargo Pad and Taxiway (KWRD043006)	No current use displaced; Constrains future use within new quantity-distance area, but surrounding land has large amount of available open space; Consistent with base plans and regulations; No effect on areas under control by other entities.
Improvements to Golf Course and New Clubhouse (KWRD99002RI)	Converts open space to recreational use; Improves morale and welfare of personnel; Consistent with base plans, but this use is not recommended for areas exposed to > 80 DNL; No effect on areas under control by other entities.
Construct War Reserve Materiel Facility (KWRD013000)	No current use displaced; Improves mission functions; Consistent with base plans and regulations, but may require noise level reduction construction for some indoor areas; No effect on areas under control by other entities.
Construct Closed Storm Drain (KWRD980148)	No current use displaced; Improves airfield safety; Consistent with base plans and regulations; No effect on areas under control by other entities.
Repair Runway 07 Open Storm Drain and Berm (KWRD020090A/B)	No current use displaced; Improves airfield safety; Consistent with base plans and regulations; No effect on areas under control by other entities.

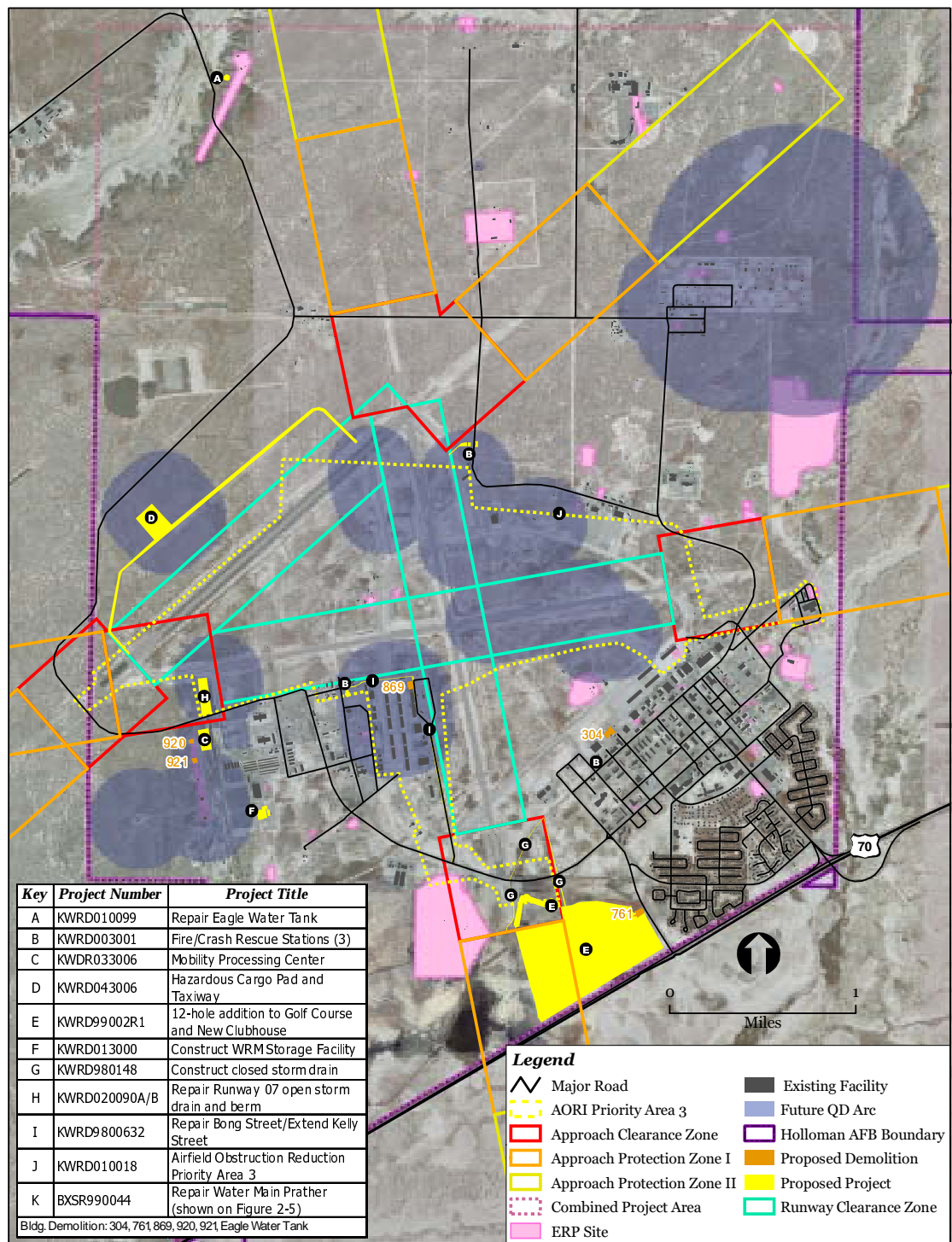
<i>Project Title</i>	<i>Land Use assessment</i>
Repair Bong Street and Extend Kelly Road (KWRD9800632)	No current use displaced; Improves traffic circulation; Consistent with base plans and regulations; No effect on areas under control by other entities.
Airfield Obstruction Reduction Priority Area 3 (KWRD010018)	No current use displaced; Improves airfield safety; Consistent with long-range planning; No effect on areas under control by other entities.
Prather water main (KWRD990044)	May displace some residential use if right-of-way (ROW) expanded (Option 2); Short-term inconvenience to local residents during construction; Use of ROW for multiple services consistent with infrastructure planning principles; Expanded ROW would require negotiated easements between City of Alamogordo and property owners.

None of the proposed projects located on Holloman AFB would influence or impact land uses outside the base boundary. Consequently, there would be no effect on the use or management of surrounding lands. Noise from construction activities would be temporary and would not impair the continuation of existing or planned uses.

Implementation of the on-base projects would not alter traffic circulation on the base. Haul routes related to demolition and construction have not been established, but would be routed to avoid base housing areas and other noise-sensitive areas as much as practicable. Truck traffic could lead to the degradation of road surfaces over an extended period of use. Construction truck traffic and construction workers commuting to the project sites would generate minor increases in vehicle trips per day on base roadways and could increase congestion at the gates. At project sites, temporary lane closures may be necessary during demolition and construction activities. Appropriate signage and detour to maintain access would be provided. These impacts would be short term and temporary, occurring only for the duration of the construction period.

Specific road projects (Bong Street repairs, the new Kelly Road extension and removal of roadway in the airfield CZ) would improve circulation and benefit safety of traffic in localized areas. Widening and paving shoulders would provide safer conditions when vehicles need to pull over for approaching emergency vehicles.

In general, the Holloman AFB WINDO projects would benefit on-base land use resources.



Notes: AFB = Air Force Base; AORI = Airfield Obstruction Reduction Initiative; ERP = Environmental Restoration Program; QD = quantity-distance

Sources: HAFB n.d. a,c,d,e,j,k,l,m

Figure 4-3. Location of Proposed WINDO Projects Relative to Safety Environment

4.5.2.2 Prather Water Main

Construction and demolition activities for the new water main along Hamilton Road would generate additional truck traffic and noise from operation of equipment. If the existing pipeline is removed, onsite crushing of the pipe, and loading debris onto haul trucks would generate considerable local noise. Excavations and grading could cause dust to blow in local areas. Trenching would bisect several driveways and access streets when old pipe is removed and new pipe is installed.

These effects could cause temporary annoyance or interruption to residential conditions. This disruption would progress down the line over a period of time. Any given location could experience one or two weeks of disturbance, possibly at different times during the construction process. Alternative access would be provided to all occupied and inhabited homes during construction. The construction contract would require that any damaged or removed property (such as fencing, walls or landscaping) be replaced with similar or higher-grade materials upon completion of the construction work. The City of Alamogordo may widen or resurface Hamilton Road in the future, but underground pipes would not be a concern. However, above-ground valves may need to be reengineered (Miramontes 2004). To avoid future issues or reengineering, Holloman AFB would coordinate with the city's Engineering Department on the design for the Prather water main replacement. Overall, effects on land use would be minimal from temporary construction activities.

If the new pipe alignment is outside the existing ROW, the City of Alamogordo and Holloman AFB would coordinate with affected property owners to find solutions or equitable compensation for the use of an expanded utility corridor. This process would need to be completed before work begins on the water main project.

The Prather construction activity may have a slight effect on traffic levels and vehicle mix on Hamilton Road for the duration of the construction period. Also, trenches may cut across access roads and driveways. However, alternate access would be provided to residents and local users. Prior to construction, the construction contractor would develop a Traffic/Safety Plan that defines construction traffic routes, staging areas, and any special procedures to address safety and access during the construction phase.

4.5.3 Base Only Alternative

Under this alternative, land use effects on Holloman AFB would be the same as those described in Section 4.5.2.1. Land use and traffic along Hamilton Road would not be temporarily affected. There would be no need to expand existing ROWs (Option 2) if the project is not implemented. Over time, the risk of leaks and increasing maintenance work along the line is likely to increase and cause similar temporary inconvenience to residents as described in Section 4.5.2.2.

4.5.4 No Action Alternative

Under the No Action Alternative, several unmet functional needs would persist, and unsafe conditions would remain uncorrected around the airfield. While this would be neutral with respect to land use on the base, the No Action Alternative would not meet goals and objectives for physical development of Holloman AFB in its planning documents.

4.6 SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE

4.6.1 Methodology

Socioeconomics. The action alternatives consist of economic activities of relatively short duration. With the exception of the Prather water main project, all construction activity (including demolition, material hauling, and recycling) would occur within Holloman AFB boundaries.

Environmental Justice. Areas containing relatively high minority, low-income, or child populations are given special consideration to address the potential of disproportionately high or adverse human health or environmental effects on these communities. Race, ethnicity, poverty status and age characteristics of the population in Otero County were analyzed to evaluate environmental justice. Protection of children reviewed local and county figures to determine any proportional differences from regional or state demographics.

Potential environmental justice issues include the presence of asbestos and lead paint in the existing structures to be demolished and the presence of noise and dust along the haul route, relative to surrounding affected populations.

4.6.2 Base Plus Prather Alternative

4.6.2.1 Socioeconomics

Construction activities associated with the Base Plus Prather Alternative would commence between 2005 and 2007 and involve expenditures of approximately \$78 million. The Prather demolition, disposal, and construction is estimated to be \$3 million of this expenditure. This represents an average of about \$26 million in construction contracts over each of the next three years. This falls within the recent usual range for construction contracts for Holloman of \$8 million in FY 2002 and \$45 million in FY 2003.

The proposed construction activity would generate a number of direct construction-related jobs and additional indirect jobs through the multiplier effect of regional purchases. Construction activity also would contribute to regional economic output and household incomes. These potential effects would be temporary. The regional construction industry could accommodate the proposed projects, since proposed construction would represent a continuation of the economic activity generated by Holloman AFB in the local area and region. Depending on the flow of funding, demand for labor could be cyclical or intermittent, and could generate minor, temporary in-migration or commuting from surrounding communities.

4.6.2.2 Environmental Justice

The Base Plus Prather Alternative would involve facility demolition, construction, and roadway improvements on Holloman AFB. All proposed construction activities would be designed and sited to comply with safety criteria and guidelines. Standard building and construction procedures and BMPs would be followed by the construction contractors. Contractors would be required to establish and maintain safety programs.

The vicinity of Holloman AFB has minority and low-income populations that are consistent with regional and state levels. Because no significant, adverse environmental impacts would occur from implementation of this alternative, no populations, disadvantaged or otherwise, would be adversely affected. As a result, no impact with regard to environmental justice is anticipated.

Implementation of the Base Plus Prather Alternative would not result in any increased environmental health risks or safety risks to children. While there is residential housing on Holloman AFB and along Hamilton Road, no specific groups of children are known to occur in the immediate vicinity of the construction projects. Short-term safety risks associated with demolition facility construction could occur, but standard safety practices would minimize any potential risks. Similarly, intermittent and short-term noise from demolition and construction would not affect the health and well being of children.

4.6.3 Base Only Alternative

4.6.3.1 Socioeconomics

Construction activity for this alternative would be slightly less than for the Base Plus Prather Alternative, totaling about \$75 million, or an average of \$25 million over each of the next three years. Effects to the local economy and workforce would be similar to the Base Plus Prather Alternative (Section 4.6.2.1), and fall within the usual range of economic impact generated by Holloman AFB.

4.6.3.2 Environmental Justice

The effects on local populations and economic justice issues would be similar to the Base Plus Prather Alternative (Section 4.6.2.2).

4.6.4 No Action Alternative

Socioeconomics. No Action could result in a drop off in annual construction contract expenditures by the base and could have a moderate impact on the local and regional economy. This would most directly affect the construction labor workforce and local businesses that provide services and goods for some portion of the construction activities on base, such as food services, lodging, and wholesale supplies. The local and regional economy is fairly diverse and has historically responded to cyclical construction contracting at the base.

Environmental Justice. Under the No Action Alternative, the proposed construction projects at Holloman AFB would not be implemented. No environmental justice concerns or health and safety risks to children would be anticipated under the No Action Alternative.

4.7 CULTURAL RESOURCES

4.7.1 Methodology

A number of federal regulations and guidelines have been established for the management of cultural resources. Section 106 of the NHPA, as amended, requires federal agencies to take into account the effects of their undertakings on historic properties. Historic properties are cultural resources that are listed in, or eligible for listing in, the NRHP. Eligibility evaluation is the

process by which resources are assessed relative to NRHP significance criteria for scientific or historic research, for the general public, and for traditional cultural groups.

Under federal law, impacts to cultural resources could be considered adverse if the resources have been determined eligible for listing in the NRHP or have been identified as important to Native Americans as outlined in the American Religious Freedom Act and EO 13007 Indian Sacred Sites. The *American Indian and Alaska Native Policy* (DoD 1999) provides guidance for interacting and working with federally-recognized American Indian governments. DoD policy requires that installations provide timely notice to, and consult with, tribal governments prior to taking any actions that may have the potential to significantly affect protected tribal resources, tribal rights, or American Indian lands.

Analysis of potential impacts to cultural resources considers direct impacts that may occur by physically altering, damaging, or destroying all or part of a resource; altering characteristics of the surrounding environment that contribute to the resource's significance; introducing visual or audible elements that are out of character with the property or alter its setting; or neglecting the resource to the extent that it deteriorates or is destroyed. Direct impacts can be assessed by identifying the types and locations of proposed activity and determining the exact location of cultural resources that could be affected. Indirect impacts generally result from increased use of an area.

4.7.2 Base Plus Prather Alternative

4.7.2.1 Holloman AFB

The current proposed WINDO projects would entail projects throughout the southern part of Holloman AFB (Figure 2-1) ranging from street repairs and extensions, to building construction and repair to the Prather water main between the BWWSA and Alamogordo (Figure 2-5). Six of these projects would have no effect on known archaeological, architectural, or traditional resources:

- Construct Closed Storm Drain;
- Repair Bong Street and Kelly Road Extension;
- Repair Runway 07 Open Storm Drain and Berm;
- Hazardous Cargo Pad and Taxiway; and
- Construct WRM storage facility.

The remaining five projects on Holloman AFB would include recorded cultural resources within their boundaries, and may have an effect on those resources. Five buildings that would be demolished have not been evaluated for NRHP eligibility. These structures do not meet Cold War or historic property criteria and do not merit consideration for inclusion in the NRHP. Holloman AFB would determine their NRHP eligibility in consultation with the New Mexico SHPO prior to demolition.

The AORI projects encompass a large parcel of land in which a number of small projects would occur, including the relocation, replacement, burying, and or removal of over 130 obstructions

that violate airfield CZ safety plane criteria. Obstructions include power poles, concrete pads, curbs, manholes, and small structures. Four archaeological sites located within this project area are not eligible for the NRHP; the architectural features to be removed are similarly not eligible for the NRHP.

The Fire/Crash Rescue Stations project would include the demolition of two existing fire stations, Buildings 304 (built in 1956) and 869 (built in 1965). Neither of these buildings has been evaluated for NRHP eligibility, but both have been recommended for evaluation in the Holloman AFB Cultural Resource Management Plan (CRMP) (HAFB 1999). No archaeological resources have been identified at the location for the construction of a third fire/crash rescue station.

As part of the MPC project, Buildings 920 and 921, both ancillary explosives facilities constructed in 1959, would be demolished. The Holloman AFB CRMP recommends both buildings be evaluated for NRHP eligibility, but they remain unevaluated at this time. No archaeological resources have been identified at the location chosen for the new building.

The golf course project would include adding 12 holes to the existing golf course, removing three holes, demolishing the existing clubhouse and constructing a new clubhouse. The 1957 clubhouse has not yet been evaluated, but evaluation is recommended in the Holloman AFB CRMP (HAFB 1999). Archaeological site LA104254, which lies away from the current golf course but within the area of the proposed expansion, is not eligible for the NRHP, and would not be affected by this project.

The Eagle Water Tank project would remove the existing water tank and construct a new tank fewer than 1000 feet to the west. Both the existing tank and the proposed relocation lie within the boundary of the Missile Stands Test Area site (LA104274/HAR-041). The water tank is modern and not eligible for the NRHP (HAFB 1999). The project would relocate the water tank away from its position immediately adjacent to a Jet Bomb Launch Ramp into an area that has been completely modified by relatively recent (i.e., in the 1970s) fill dirt and gravel dumping. This would somewhat lessen the effect of its presence in the vicinity of the missile test stands. Based on existing site maps (HAFB 1997), the proposed new water tank location would not disturb any features of this NRHP-eligible site. A new pipe trench, extending 900 feet from the old tank location to the new tank, would not intersect any known site features. Provided the new tank remains located well away from the recorded site features and the trench also does not disturb unknown, below-ground site features, there would be no adverse effect to the site. This project would also require consultation with the New Mexico SHPO in compliance with Section 106 of the NHPA.

Although all projects proposed for on base include some form of ground disturbance, none would adversely affect known archaeological sites. Archaeological surveys have examined approximately 96 percent of the base, including the combined project area (as depicted on Figure 1-2). Although the surveys have documented 177 archaeological resources evaluated as eligible or potentially eligible for inclusion in the NRHP, only the Eagle Water Tank relocation would affect an NRHP-eligible site. However, the proposed relocation of a site element that

does not contribute to the site's NRHP eligibility also would not change the site's NRHP status (HAFB 1999).

Impacts to traditional resources would not occur under this alternative.

In the event of inadvertent discoveries of cultural resources during any project-related activities—including ground disturbance, construction or demolition—all activities at that location would be halted until a qualified professional archaeologist, in compliance with the Holloman CRMP and federal regulations, evaluates the find.

4.7.2.2 Prather Water Main

Disturbance associated with the Prather water main repair would primarily occur within a previously disturbed area. Survey of the Prather area of impact found a few isolated artifacts identifiable with the prehistoric occupation of the vicinity. None of these were in associations or settings that would indicate potentially significant cultural resources (USACE 2005). Similar procedures would be followed as described above, if cultural resources were unexpectedly discovered during construction. No impacts would result.

4.7.3 Base Only Alternative

Consequences under this alternative would be the same as described in Section 4.7.2.1. Consequences noted in Section 4.7.2.2 would not occur.

4.7.4 No Action Alternative

Under the No Action Alternative, WINDO construction projects would not take place as proposed. Impacts to cultural resources are not expected under this alternative. Resources would continue to be managed in compliance with federal law and Air Force regulation.

4.8 SAFETY

4.8.1 Methodology

An impact would occur to safety if implementation of the action would render existing installation facilities incompatible with safety criteria (e.g., CZs) or regulations. QD arcs, airfield CZs, and APZs were reviewed against the proposed new construction for compatibility determination.

This analysis assumes that OSHA regulations and standards would apply to all work performed. Therefore, worker safety is not assessed. It also assumes that construction sites would be fenced and would not be accessible to the public.

4.8.2 Base Plus Prather Alternative

4.8.2.1 Holloman AFB

Explosives Safety

Figure 4-3 shows the location of proposed projects relative to QD arcs on the base. The proposed construction is generally compatible with existing land uses and would be located outside of munitions QD arcs. The construction of the MPC would take place within QD arcs for Buildings 920 and 921; however the proposal would relocate the munitions stored at these

facilities and demolish the buildings. This action would remove the existing QD constraint. No explosives would be used or handled during construction activities (other than the munitions relocation). Moving the hazardous cargo pad would improve explosives safety conditions.

Ground Safety

Construction workers would use hearing protection and follow OSHA standards and procedures. The contractor is responsible for ensuring that all contractor employees (and subcontractors) comply with all applicable OSHA standards. As a result, there would be no impacts to the safety of construction workers or other persons during construction activities. ACM would be removed in accordance with approved safety and health requirements including the use of personal protective equipment during the removal and disposal phases.

Flight Safety

Figure 4-3 show the location of proposed projects relative to APZs and runway CZs at Holloman AFB. **Table 4-5** compares the WINDO projects with the APZ information from Section 3.8. The golf course renovation project would relocate three existing holes from within the CZ to outside the CZ. Implementing the AORI for Priority Area 3 would remove several obstructions (in violation of UFC 3-260-01) and improve airfield safety.

The construction of the Hazardous Cargo Pad and Taxiway would alleviate an existing noncompatible use within the runway CZ. Currently, hazardous cargo is loaded on a pad along Taxiway L within the runway CZ. Runways 04/22 and 07/25 are frequently closed during hazardous cargo loading operations. The new pad would allow for loading of hazardous cargo away from aircraft parking and maneuvering areas.

Several open storm drains and an existing earthen berm exceed the less than 2 percent slope criteria required for objects within the CZ. The storm drainage projects would fill the open ditches with soil and regrade or grade the surrounding area to achieve less than 2 percent slope, making conditions safer for aircraft landings and departures.

Table 4-5. APZ Compatibility with Proposed WINDO Projects at Holloman AFB

<i>Project Title/Number</i>	<i>Action</i>	<i>Compatibility</i>
Replace Eagle Water Tank (KWRD01009)	Demolition/Construction	Compatible
3 Fire/Crash Rescue Stations (KWRD003001)	Demolition/Construction	Compatible
Mobility Processing Center (KWRD033006)	Demolition/Construction	Compatible
Hazardous Cargo Pad and Taxiway (KWRD043006)	Construction	Compatible
Improvements to Golf Course and New Clubhouse (KWRD99002RI)	Demolition/Construction	Compatible
Construct War Reserve Materiel Facility (KWRD013000)	Construction	Compatible

<i>Project Title/Number</i>	<i>Action</i>	<i>Compatibility</i>
Construct Closed Storm Drain (KWRD980148)	Construction	Compatible
Repair Runway 07 Open Storm Drain and Berm (KWRD020090A/B)	Construction	Compatible
Repair Bong Street and Extend Kelly Road (KWRD9800632)	Demolition/Relocation/Construction	Compatible
Airfield Obstruction Reduction Priority Area 3 (KWRD010018)	Demolition/Relocation/Construction	Compatible
Prather water main (KWRD990044)	Demolition/Construction	Not applicable

4.8.2.2 Prather Water Main

The Prather water main project would not impact human health and safety. Construction activities would comply with all applicable occupational and safety regulations. Removal of ACM would be in accordance with New Mexico Solid Waste Management Regulations (20NMAC9.1) and transported in accordance with New Mexico regulations governing Transportation of Hazardous Material (20NMAC9.1 *et seq.*).

4.8.3 Base Only Alternative

Impacts on safety would be similar to those described for the Base Plus Prather Alternative in Section 4.8.2.1. There would be no direct safety effect from not implementing the Prather water main project. If this section of the water main is not replaced, water supply to the base could be less reliable. The base would be dependent on the City of Alamogordo water supply if the Prather line deteriorates and service is disrupted in the future.

4.8.4 No Action Alternative

Under the No Action Alternative, construction and demolition of the project included within the WINDO EA would not occur. Management of explosives and munitions would continue under existing Holloman AFB programs and there would be no environmental consequences to this resource.

4.9 HAZARDOUS MATERIALS AND WASTE MANAGEMENT

4.9.1 Methodology

This section addresses the potential impacts caused by hazardous materials and waste management practices and the impacts of existing contaminated sites on reuse options.

The qualitative and quantitative assessment of impacts from hazardous materials and solid waste management focuses on how and to what degree the alternatives affect hazardous materials usage and management, hazardous waste generation and management, and waste disposal. A substantial increase in the quantity or toxicity of hazardous substances used or generated would be considered a major impact. Major impacts could result if a substantial increase in human health risk or environmental exposure were generated at a level that could not be mitigated to acceptable standards.

Regulatory standards and guidelines have been applied in evaluating the potential impacts that may be caused by hazardous materials and wastes. Criteria for identifying potential adverse impacts include:

- Generation of 100 kilograms (or more) of hazardous waste or 1 kilogram (or more) of an acutely hazardous waste in a calendar month, resulting in increased regulatory requirements;
- A spill or release of a reportable quantity of a hazardous substance as defined by EPA in 40 CFR Part 302;
- Manufacturing, use, or storage of a compound that requires notifying the pertinent regulatory agency according to Emergency Planning and Community Right-to-Know Act; and
- Exposure of the environment or public to any hazardous material and/or waste through release or disposal practices.

4.9.2 Base Plus Prather Alternative

4.9.2.1 Holloman AFB

Hazardous Materials

Construction and demolition of facilities within the WINDO EA may require the use of hazardous materials by contractor personnel. In accordance with the base's HAZMART procedure, copies of Material Safety Data Sheets must be provided to the base and maintained on the construction site. Project contractors would be required to comply with federal, state, and local environmental laws and would employ affirmative procurement practices when economically and technically feasible.

All hazardous materials and construction debris generated by the proposed project would be handled, stored and disposed of in accordance with federal state and local regulations and laws. Permits for handling and disposal of hazardous material are the responsibility of the contractor. Hazardous materials shall not be stored on base. All hazardous materials used at the construction site including, but not limited to, paint, paint thinners, gasoline, diesel, oil and lubricants shall be removed daily. Only quantities of hazardous materials required to carry out the work for the day would be permitted on site.

Hazardous Waste

Contractor personnel could generate hazardous waste during construction. Storage and disposal of these wastes would be the responsibility of the site contractor. Generation of appreciable amounts of hazardous wastes from projects included in the WINDO EA is not anticipated. Initial accumulation points for demolition would be directed by the Holloman Environmental Flight's Hazardous Water Program Manager to the new locations associated with hazardous waste generation. Any soil suspected of contamination, as discovered during the construction or demolition process, would be tested and disposed of in accordance with proper regulations.

In the event of fuel spillage during construction (e.g., fuel, oil, hazardous material), the contractor would be responsible for its containment, clean up and related disposal costs. The contractor would have sufficient spill supplies readily available on the pumping vehicle or at the site to contain any spillage. In the event of a contractor related release, the contractor shall immediately notify the 49 FW Civil Engineering/Environmental Management Office and take appropriate actions to correct its cause and prevent future occurrences.

If ACM or lead-based paint are found in or near the demolition areas, then the following federal and state regulations must be followed (lead-based paint has been identified as being present on the Eagle Water Tank).

Asbestos Removal and Disposal. Upon classification as friable or nonfriable, all waste ACM should be disposed of in accordance with the New Mexico Solid Waste Management Regulations (20NMAC9.1) and transported in accordance with the New Mexico regulations governing Transportation of Hazardous Materials (20NMAC9.1 *et seq.*).

Lead-Based Paint Removal and Disposal. The proposed project should comply with the U.S. Department of Labor, OSHA regulations, and with EPA regulations addressing Lead Management and Disposal of Lead-Based Paint Debris (40 CFR Part 745).

Storage Tanks

ASTs associated with buildings scheduled for demolition would be drained, cleaned and prepared for disposal off site or relocated for use at a new facility if required by Holloman AFB.

Environmental Restoration Program

Construction and demolition associated with projects contained within the WINDO EA would occur near ERP Sites OT-24, LF-19, OT-20, and WP-49, as shown on Figure 4-3. The base ERP office has worked closely with the 49 CE on siting projects to avoid ERP sites. No project would require construction on an ERP site. An ACC waiver to construct on or near an ERP site would not be necessary.

4.9.2.2 Prather Water Main

Construction and demolition for the Prather water main would comply with all regulations governing hazardous materials and waste described in Section 4.9.2.1. Particularly, removal of asbestos-wrapped pipe would require special treatment and removal. Using prescribed methods, no health and safety impacts would result.

4.9.3 Base Only Alternative

Impacts of this alternative would be the same as described in Section 4.9.2.1 for Holloman AFB. Activities described in Section 4.9.2.2 would not occur.

4.9.4 No Action Alternative

Under the No Action Alternative, demolition and construction of the WINDO projects would not occur at this time. Management of hazardous wastes would continue under existing Holloman AFB programs. There would be no environmental consequences to this resource.

4.10 INFRASTRUCTURE

4.10.1 Methodology

Level of service is the primary utility service issue. Criteria for evaluating impacts to utility service include potential for disruption and/or permanent degradation of the resource.

4.10.2 Base Plus Prather Alternative

4.10.2.1 Holloman AFB

Electrical System. A slight increase in electrical use is anticipated as a result of the overall increase in facility space on base. New facility construction would employ energy-conserving equipment to reduce the impact on the existing electrical infrastructure and no significant impacts are expected. With demands on the existing substation at approximately 33 percent of overall substation capacity, overall system capacity would be adequate to meet the new requirements.

Potable Water. Eight proposed projects would not appreciably increase annual potable water requirements. Three projects would add approximately 330,000 square feet of new buildings; however no increase in Holloman AFB population is anticipated. Replacement of the Eagle Water Tank would improve the reliability of the potable water storage system and maintain fire protection standards.

Construction of the expansion to the existing golf course would increase average daily potable water demand. Currently the existing 9-hole course uses approximately 0.168 MGD (49 FW 2004b). The expansion would double the size of the course increasing the potable water requirement by a similar amount. With the capacity of the existing well system estimated at 3 MGD, average daily demands would increase from 2.1 MGD to approximately 2.4 MGD. This additional demand could be met from the existing system. Studies are being conducted at Holloman AFB to develop strategies to manage water resources in a more effective manner (49 FW 2004b). The base's Water Management Plan accounts for the future increase in potable water use for the golf course addition and incorporates several water conserving strategies to achieve overall water consumption reductions in the future (AFCESA/ACC 2004).

Sewage. A slight increase in wastewater flows could occur as a result of the increase in facility space. Current wastewater flows are approximately 34 percent of the capacity of the existing wastewater treatment plant and no adverse impacts are anticipated to wastewater facilities.

Solid Waste. Demolition of the six facilities could generate solid wastes consisting of concrete, concrete block, wood, structural steel, glass, and miscellaneous metal building components. These materials would be generated during a three-year period from FY 2005 through FY 2007 (Table 4-6).

Table 4-6. Cubic Yards of Solid Waste Expected from Demolition

<i>Fiscal Year</i>	<i>Cubic Yards of Solid Waste</i>
2005	10,181
2006	2,278
2007	2,035

The total amount of demolition waste generated is estimated to be approximately 14,494 cubic yards, with the major portion of that amount being generated in FY 2005. Demolition contractors would be directed to mulch or recycle materials to the maximum extent possible, thereby reducing the amount of demolition debris disposed in landfills. Materials not suitable for recycling would be taken to a landfill permitted to handle construction debris wastes, such as the Lincoln/Otero County Regional Landfill. The amount of solid waste generated by the demolition and construction projects on Holloman AFB would not have a significant impact to the operating life of the landfill. No significant environmental consequences would result from the implementation of on-base projects.

Storm Drainage System. Construction of new building space and other surfaces (roads, parking lots and concrete pads) would add 39 acres of impervious surfaces to Holloman AFB (including the demolition of existing facilities). Each project disturbing in excess of one acre requires an NPDES Storm Water General Permit for Small Construction and a separate SWPPP that addresses BMPs to reduce the introduction of sediment and pollutants into the storm water.

As each project is designed and constructed, the potential effects of the additional impervious surface and storm water discharge would be evaluated in order to reduce the overall effect on the existing storm water system. While no significant impacts are anticipated with the construction of these facilities, there is the potential that during summer thunderstorms any areas on base that already experience flooding could experience more frequent flooding conditions.

Heating and Cooling Systems. A slight increase in heating and cooling demands for additional facilities would be met through the existing capacity in the natural gas system and the electrical system. No adverse impacts are anticipated to this utility.

Liquid Fuels System. No projects are included that would have a direct impact to the fuel handling capability of Holloman AFB. As a result, no impacts to liquid fuels are anticipated.

4.10.2.2 Prather Water Main

Construction and demolition for the Prather water main project would have the following effects on infrastructure.

Electrical System. This project would not affect the Holloman AFB or the regional electrical supply or distribution system.

Potable Water. Replacement of the existing Prather water main would have a beneficial effect on base's potable water system. The existing pipeline suffers from frequent leaks and requires a high level of maintenance. This project would ensure water supply to Holloman AFB from its groundwater resources at Bole's Well Field. This action would require notification to the NMED, Drinking Water Bureau, assuming an engineer registered with the State of New Mexico had responsibility for the project. The project would not increase water consumption and would provide more reliable water delivery to the base.

Sewage. This project would have no effect on sewage systems.

Solid Waste. Removal of the existing four-mile segment of Prather water main would generate 2,640 tons of concrete and steel debris. This would use up less than 0.1 acre of regional landfill capacity. There are no capacity issues at the landfill. Removal of asbestos-wrapped pipe would comply with New Mexico code (20NMAC9.1).

Storm Drainage System. Requirements and potential impacts would be similar to those described for projects on Holloman AFB in Section 4.10.2.1.

Heating and Cooling Systems. No effect is expected on these systems.

Liquid Fuel System. No effect is expected on this system.

4.10.3 Base Only Alternative

Impacts on infrastructure under this alternative would be the same as those described in Section 4.10.2.1. The effects described in Section 4.10.2.2 would not occur. This alternative would generate less construction and demolition debris. It also would forego the benefit of ensuring more reliable water supply to Holloman AFB Maintenance on the Prather water main may continue to increase over time to meet the base's water demand.

4.10.4 No Action Alternative

Under the No Action Alternative, infrastructure upgrades associated with the WINDO plan would not be constructed and deficiencies in the systems could reduce wartime readiness and training.

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5.0 SUMMARY OF CUMULATIVE CONSEQUENCES

This section provides (1) a definition of cumulative effects; (2) a description of past, present, and reasonably foreseeable actions relevant to cumulative effects; (3) an assessment of effects from the interaction of the preferred alternative (see Section 1.3) with other actions; and (4) a description of any irreversible or irretrievable commitment of resources that could potentially result from these interactions.

5.1 CUMULATIVE EFFECTS

5.1.1 Definition of Cumulative Effects

CEQ regulations stipulate that the cumulative effects analysis within an EA should consider the potential environmental impacts resulting from “the incremental impacts of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency or person undertakes such other actions” (40 CFR 1508.7). Recent CEQ guidance in *Considering Cumulative Effects* affirms this requirement, stating that the first steps in assessing cumulative effects involve defining the scope of the other actions and their interrelationship with the preferred alternative. The scope must consider geographic and temporal overlaps and must evaluate the nature of interactions among these actions.

Cumulative impacts to environmental resources result from incremental effects of proposed actions when combined with other past, present, and reasonably foreseeable future projects in the ROI. Cumulative impacts can result from individually minor, but collectively substantial, actions undertaken over several years by various agencies (federal, state, or local) or individuals. In accordance with NEPA, a discussion of cumulative impacts resulting from projects that are proposed (or anticipated over the foreseeable future) is required.

Holloman AFB updates facilities on a continual basis, as necessary. While it is not practical to catalog all minor projects that could occur over the short term, a list of the major projects in the ROI has been analyzed for the potential to create cumulative environmental impacts. Planning efforts in the ROI include the actions described within this EA, as well as others that are either ongoing or planned over the short term. Additional projects within the ROI include are discussed below.

5.1.2 Past, Present and Reasonably Foreseeable Actions

Recently completed, ongoing and proposed actions (in addition to those that are a component of this EA) at Holloman AFB include projects that have been recently completed and projects planned for the foreseeable future.

Recently completed projects include the following.

- Inactivation of the 20 Fighter Squadron involved removal of 17 F-4 aircraft from the aircraft inventory as a result of the GAF ending its F-4 pilot training program. This action resulted in loss of about 180 jobs on base and reduction in aircraft operations at the airfield and regional military training airspace (ACC 2004A).

- New perimeter fencing was recently installed around the F-117A enclave as part of anti-terrorism protection requirements.

Projects planned for the foreseeable future include the following.

- Repair 49er Avenue. This primary east/west access route has deteriorated from heavy use. This project would repair approximately two miles of 49er Avenue between Trinity and 11th Avenue. It would resurface, widen and add paved shoulders.
- The 49 MMG is proposing a phased development of the 49 MMG compound (also known as the BEAR Base Area) over the next several years. Construction projects would alleviate existing shortfalls, improve operating conditions, and keep pace with anticipated mission demands in the future. The compound occupies the land between the proposed MPC and the F-117A area. Proposed short-range projects include constructing a K-Span training area and utility element, repairing the ramp and some roadways, constructing an access road to mobility area, enclosing a drainage ditch, and expanding Building 953. Future development would expand ramp, mobility, training, and storage areas within the compound and to the south and east of the existing area. An environmental evaluation of implementing this plan is ongoing. Long-term redevelopment could expand the BEAR Base Area. Future actions would undergo environmental analysis.
- New perimeter fencing was recently installed around the F-117A enclave as part of anti-terrorism protection requirements.
- The Military Family Housing project involves extensive redevelopment of family housing on Holloman AFB over the next several years. Most of this activity would occur in the general vicinity of the existing family housing areas on the south end of the base. About 970 existing units would be demolished and 1,063 units constructed. There would be a net increase of 93 family housing units on base.
- The City of Alamogordo may widen Hamilton Road or install or replace existing pipelines in the utility ROW.
- In the fall of 2004, saltcedar lining the ditch in the CZ was treated with the herbicide Arsenal. Saltcedar stumps should be removed in about two years even if the WINDO projects are not implemented. In this case, however, removal of the stumps would create a body of open water where none previously existed.

The projects listed above, as well as the projects analyzed within this EA, have all been coordinated through the Base Community Planner, and have all been incorporated into the base General Plan. The projects listed above have or would undergo separate NEPA analysis.

As an active military installation, Holloman AFB undergoes changes in mission and training requirements in response to defense policies, current threats, and tactical and technological advances. As a result, the base requires new construction, facility improvements, infrastructure upgrades, and maintenance and repairs on an ongoing basis. Although such known construction and upgrades are a part of the analysis contained in this EA, some future

requirements cannot be predicted. As those requirements surface, future NEPA analysis will be conducted, as necessary.

The goals of WINDO, as analyzed in this EA, are to document the known projects required at Holloman AFB over the next three years in support of their mission; to provide an environmental analysis of these projects; and to prepare to implement the appropriate facility improvements as funds become available. It is quite likely that during the course of the next three years, other projects not included in this analysis may be required and projects included in this analysis may be revised. The nature of the military today is that missions are dynamic and planners at the base level must be proactive in addressing potential impacts associated with these changes. Should additional projects or project changes be required, they will be compared with the WINDO projects addressed in this EA and appropriate EIAP documentation will be prepared to ensure compliance with the regulations described in Section 2.4.

5.1.3 Analysis of Cumulative Effects

Physical Resources (Water and Soils). The proposed development of the Area Development Plan (ADP) for the MMG and the repairs and widening of 49er Avenue constitute the primary foreseeable future projects that may affect soil and water resources on Holloman AFB, in addition to those described in Section 4.1.2.1. Both of these projects would add impervious surface and involve short-term disturbance of soils due to construction activities. Portions of the storm water drainage system may need additional outfalls to cope with additional storm water runoff. They would be required to comply with the NPDES Storm Water General Permit for Small Construction and NPDES Multi-Sector General Permit for Industrial Activities and would implement mitigation measures to keep erosion and sedimentation to a minimum. No wetlands would be affected by either of these two projects, so the total acreage of wetlands affected would not be cumulatively affected.

Biological Resources. Other projects with the potential to further affect biological communities include repair of 49er Avenue, construction of a WRM storage facility and redevelopment of the housing area. Terrestrial biological communities would not be affected from the combined effects of all planned construction, again primarily because much of the vegetation is landscaped and wildlife present are already adapted to human disturbance. No further loss of wetland is projected. A potential cumulative effect would be an increase in impervious surface and associated storm water runoff. Some of the runoff could be beneficial to wetlands in the project area, but strong runoff could also damage important emergent vegetation. Although difficult to predict, the net balance of any change in storm water runoff would not likely to have any pronounced impact. Construction of a storm drain for the new WRM storage facility would not likely impact wetlands in the project area. Under the No Action Alternative, follow-up plans to remove saltcedar stumps in the CZ would likely increase the potential for bird collisions with airplanes. Removal of saltcedar stumps in two years would create a new body of open water at the end of the runway. Open water would attract a higher number of aquatic birds to the project area.

Air Quality. In general, combustive and fugitive dust emissions from proposed WINDO construction activities, as well as those activities described in Section 5.1.2, would produce

localized, elevated air pollutant concentrations that would occur for a short duration and would not result in any long-term impacts on the air quality of Otero County (AQCR 153). Cumulative impacts to air quality in the county would be minimal. Recent inactivation of the 20 FS resulted in few flight operations at Holloman, with a slight reduction in projected annual aircraft emissions, potentially having a benefit to regional air quality.

Noise. Construction noise emanating off-site as a result of proposed on-base actions and the activities described in Section 5.1.2 would probably be noticeable in the immediate site vicinity, but would not be expected to create adverse impacts. The acoustic environment on and near Holloman AFB is expected to remain relatively unchanged from existing conditions. The recent reduction in F-4 operations following inactivation of the 20 FS resulted in a slight reduction in noise levels at the airfield, although operations remain within the historic range for the base over several years. Cumulative impacts from noise would be minimal.

Land Use Resources. The proposed construction projects associated with the WINDO as well as those described in Section 5.1.2 are expected to enhance base planning and compatibility of functions on base. Some existing incompatibilities would be corrected. Land use off base would not be impacted. Improvements for the Prather water main and possibly expansion of the ROW would be coordinated with the City of Alamogordo. This would reduce the possibility for Holloman's actions to hinder the city from implementing future infrastructure plans. Visual resources would not be impacted. Overall, minimal cumulative impacts to land use and visual resources would result. Other lease redevelopment efforts may also affect circulation in localized areas on base, but, in general, transportation on the base should improve from proposed and other redevelopment efforts.

Socioeconomics and Environmental Justice. There are no long-term changes in population or employment expected at Holloman AFB as a result of implementation of the WINDO or the projects described in Section 5.1.1. Additionally, these projects would not create adverse environmental or health effects, and therefore no disproportionately high or adverse impacts to minority, low-income, or youth populations would occur. Cumulative impacts to socioeconomics and environmental justice would be minimal. There are no projected cumulative impacts upon children.

Cultural Resources. Most of the projects planned for Holloman AFB would not add to cumulative impacts to cultural resources of the WINDO projects. Development of the ADP for the MMG would not include the demolition of any buildings, and would proceed in an area free of known archaeological resources. Repair and widening of 49er Avenue would also occur away from known archaeological resources. The reduction in aircraft operations that resulted from the inactivation of the 20 FS would not affect cultural resources. The redevelopment of military family housing could include the demolition of buildings older than 50 years. At this time, housing units on Holloman AFB have not been evaluated for NRHP eligibility. However, as it is unlikely that these are NRHP eligible, this project would not add to the cumulative impact to historic resources, even in the unlikely event one or more of the buildings to be demolished as part of the WINDO program is found to be NRHP eligible. Impacts to cultural resources from any future actions off base would be evaluated prior to implementation.

Safety. Implementation of the proposed WINDO projects and the activities described in Section 5.1.2 would involve ground activities that could expose workers performing the required site preparation, grading, and building construction to some risk. Strict adherence to all applicable occupational safety requirements would minimize the relatively low risk associated with these construction activities. All projects have been sited outside any QD arcs, as appropriate. Additionally, the proposed projects would include measures to enhance and correct CZ violations. Improved safety is an objective for the 49er Avenue project and several of the proposed WINDO projects. Cumulative effects to safety would be minimal or beneficial.

Hazardous Materials and Waste Management. The proposed construction and demolition projects associated with the WINDO EA as well as those described in Section 5.1.2 would generate construction and demolition waste that would be recycled or taken to the local landfill, as appropriate. Hazardous materials and wastes would be handled, stored and disposed of in accordance with applicable regulations. Any ACM, lead-based paint, or contaminated soils associated with ERP sites would be removed and disposed of per applicable regulations. None of the actions would increase the volume of hazardous material or waste associated with day-to-day operations and maintenance on base. Negligible cumulative impacts to hazardous materials and waste management would result.

Infrastructure. The proposed construction and demolition projects associated with the WINDO as well as those described in Section 5.1.2 could result in some temporary interruption of utility services and minor hindrance of transportation and circulation during construction activities. These impacts would be temporary, occurring only for the duration of the construction period. In general, infrastructure at Holloman AFB would improve under these actions, as there would be some upgrades to existing and extensions to currently nonextant utilities. Both WINDO projects and those described in Section 5.1.2, particularly the military family housing initiative, would generate construction and demolition waste that would be recycled or taken to the local landfill, as appropriate. There are currently no capacity issues with the existing landfills. However, disposition of waste for the family housing redevelopment is not currently defined. Any issues for regional landfills would be analyzed prior to a decision on that action. Cumulative impacts to infrastructure are expected to be minimal.

5.2 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

NEPA CEQ regulations require environmental analyses to identify “...any irreversible and irretrievable commitments of resources that would be involved in the Proposed Action should it be implemented” (40 CFR Section 1502.16). Irreversible and irretrievable resource commitments are related to the use of nonrenewable resources and the effects the uses of these resources have on future generations. Irreversible effects primarily result from the use or destruction of a specific resource (e.g., energy and minerals) that cannot be replaced within a reasonable time frame. Building construction material such as gravel and gasoline usage for construction equipment would constitute the consumption of nonrenewable resources.

The vast majority of Holloman AFB is undeveloped, and the proposed on-base projects would only lead to a slight increase in the amount of newly developed land. Most sites could be used

for alternative uses in the future, ranging from natural open space to urban development. No loss of future options would occur.

The primary irretrievable impacts of the action alternatives would involve the use of energy, labor, materials and funds; the conversion of some lands from an undeveloped condition through the construction of buildings and facilities; and the loss of about 11 acres of wetlands. Irretrievable impacts would occur because of construction, facility operation and maintenance activities. Direct losses of biological productivity and the use of natural resources from these impacts would be inconsequential. Direct losses of wetlands would undergo evaluation through the Section 404/401 permitting process. The base would implement measures identified in the permit approval process. The base would implement measures identified in the permit approval process.

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APPENDIX A
AIR COMBAT COMMAND
WINDO GUIDANCE

INTRODUCTION

ACC's Wing Infrastructure Development Outlook (WINDO) is the document that illustrates the base vision and provides a "flight plan" for the facility planning process. Specifically, WINDO starts with your mission-driven vision, tempered by influencing factors and pertinent base plans. It culminates in a logical array of facility projects in all available program areas.

We believe WINDO captures the commander's vision of what infrastructure improvements are necessary to support the mission. It links the Base General Plan to individual funding programs and provides the flight plan that both the base and ACC agree upon and understand. Finally, it provides a continuity vector for successive commanders to pursue.

PROCESS

Initially, Wing Commanders sign and submit a complete WINDO by 1 Sep 03 for COMACC approval. Once COMACC approves and signs the "contract" with the Wing Commander, the base posts the WINDO on their webpage. Each August thereafter, bases update their WINDO, incorporating minor vector changes in the base vision. Approximately ninety percent of the short term vision and eighty percent of the long term vision should remain the same. Project lists from normally occurring ACC program calls throughout the year will remind each base to update their WINDO with the same information. COMACC approves changes that are greater than 20 percent of the project list.

O&M facility project funds will be distributed to the bases in accordance with the ACC algorithm. Wing commanders will have the flexibility to apply the distributed funds toward any project on their approved list for that program. Funding of minor construction projects not on the approved list requires ACC/CV approval. ACC/CE approves funding for maintenance or repair projects not on the approved list.

GUIDANCE

The WINDO should be grounded in each wing's mission. It will incorporate mission-driven beddowns and weapon-system improvements, while making steady, measurable progress toward improving infrastructure C-ratings. Investment decisions should consider mission needs, severity of the requirement, and greatest return on investment in the infrastructure categories.

The WINDO should be written and produced by in-house work forces, be no more than 10 pages, and be posted on the base website. A sample WINDO and additional guidance is available on the ACC/CE website at <https://ce.acc.af.mil/cep/cep.asp>. Your ACC WINDO POC is Capt Brian Stumpe, ACC/CEPR, DSN 574-1970.

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APPENDIX B

AGENCY COORDINATION

WINDO MEMO MAILING LIST

Regional Director
Bureau of Indian Affairs Intermountain Region
PO Box 26567
Albuquerque, NM 87125

Cliff Spencer
Park Superintendent
White Sands National Monument
P.O. Box 1086
Holloman AFB, NM 88330

Estelle Bulka
US Environmental Protection Agency, Region 6
Office of Planning and Coordination (6EN-XP)
1445 Ross Avenue
Dallas, TX 75202-2733

Jim Mace
US Army Corps of Engineers
El Paso Regulatory Office
P.O. Box 6096
Fort Bliss, TX 79906-0096

Ed Carr
Executive Director
Alamogordo Chamber of Commerce
1301 N. White Sands Boulevard
Alamogordo, NM 88310

Kak Slick
State of New Mexico Office of Cultural Affairs
Historic Preservation Division
La Villa Rivera Building, Room 320
228 E. Palace Avenue
Santa Fe, NM 87501

Bob Sivinski
NMDEMNR
Forestry Resources Conservation Division
1220 St. Francis Drive
Santa Fe, NM 87504-1948

Lisa Kirkpatrick
Conservation Services Division
New Mexico Department of Game and Fish
PO Box 25112
Santa Fe, NM 87504

Gedi Cebas
Environmental Impact Review Coordinator
New Mexico Environment Department
Harold Runnels Building
1190 St. Francis Drive, N4050
Santa Fe, NM 87502

Ned Farquhar
NM SPOC
Energy and Environmental Policy Advisor
State Capitol Building
Suite 400
Santa Fe, NM 87501

Pat McCourt
City Manager
City of Alamogordo
843 San Miguel Avenue
Alamogordo, NM 88310-5360

Ruth Hooser
Otero County Administrator
1000 New York Avenue, Room 101
Alamogordo, NM 88310

Dwight Harp
President
Alamogordo Chamber of Commerce
1301 N. White Sands Boulevard
Alamogordo, NM 88310

Bill Burt
Committee of Fifty
8 Ridge Lane
Alamogordo, NM 88310

Toots Green
Committee of Fifty
1019 Canyon Road
Alamogordo, NM 88310

Donald Carroll
Mayor
1376 E. 9th St.
Alamogordo, NM 88310

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MEMORANDUM FOR: “Addressee”
 “Agency”
 “Address”

FROM: 49 CES/CEV

550 Tabosa Avenue, Bldg 55
Holloman AFB NM 88330-8458

SUBJECT: Wing Infrastructure Development Outlook Environmental Assessment

The United States Air Force at Holloman Air Force Base is preparing three Environmental Assessments. They will evaluate the potential environmental impacts from implementing several projects on its Wing Infrastructure Development Outlook (WINDO) list.

We plan to complete this work in the next three years. **Attachment 1** provides a synopsis of the projects. **Attachments 2 and 3** show the proposed locations of the projects. Those on Holloman include: new facility construction; demolition of outdated/deteriorated facilities; roadway and infrastructure repair; and removal of airfield, airspace safety criteria obstructions. Some would directly affect designated wetlands. Some would affect the storm water network supplying the wetland environment. The one off-base project (Attachment 3) would repair approximately seven kilometers of pipeline that conveys water to the base. That line borders a City of Alamogordo road seven miles east of the base.

We are interested in any comments you may have that will help us identify areas of concern.

We will send a copy of the public documents as soon as they are available. We expect to provide them no later than June 30, 2005. We hope you will review them and provide any further comments you may have.

We would appreciate receiving your initial comments by November 15, 2004. Written responses may be sent to Mr. Rich Wareing at the above address or to richard.wareing@holloman.af.mil.

You may also respond via telephone to (505) 572-3931.

Thank you for your assistance in this matter.

Sincerely,

DEBORAH HARTELL
Chief, Environmental Flight

3 Attachments

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PROJECT SYNOPSES

Repair Water Main Prather (BXSR990044). This project would replace approximately seven kilometers of an existing pipeline that conveys water for Holloman's use. The deteriorated section runs along Hamilton Road, parallel to U.S. Highway 54. It begins south of the intersection with US Highway 70 and ends at the Boles Well field.

Repair Eagle Water Tank (KWRD010099). This 300,000 gallon elevated water tank is deteriorated and violates airfield obstruction criteria. This project would demolish the existing and replace it with a new tank and support structure in a nearby location that would not violate the airfield safety plane.

Fire/Crash Rescue Stations (KWRD003001). This project would replace two outdated fire stations and construct a third to improve emergency support capabilities. It would demolish two existing stations. It would construct the new third fire station on the north end of the airfield to provide emergency response coverage.

Mobility Processing Center (KWRD033006). Equipment mobilization and personnel deployment functions are scattered through the base. This new 11,700 square-meter facility would consolidate activities and provide strategic access to the airfield.

Hazardous Cargo Pad and Taxiway (KWRD043006). This project would provide a new 22,320 square meter hazardous cargo loading area and a 79,880 square-meter taxiway. It would provide safer conditions for loading hazardous cargo onto aircraft. The new location would meet safety distance criteria. No other functions or occupied buildings would lie within the safety zone.

Addition to Golf Course and New Clubhouse (KWRD993002R). This project would remove three fairways that are partially within the runway CZ. It would then add 12 holes outside of the CZ to provide an 18-hole course. The project would demolish the existing clubhouse and replace it with a new 71,400 square-meter clubhouse and parking area.

Repair 49er Avenue (KWRD9800631 A & B). This primary east - west access route has deteriorated from heavy use. This project would repair approximately two miles of 49er Avenue between Trinity and 11th Avenue. It would resurface, widen and add paved shoulders.

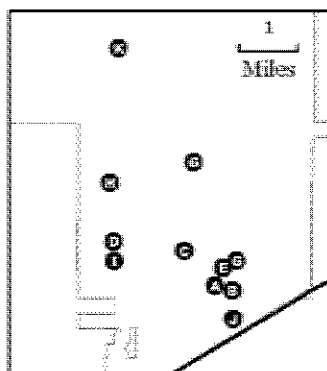
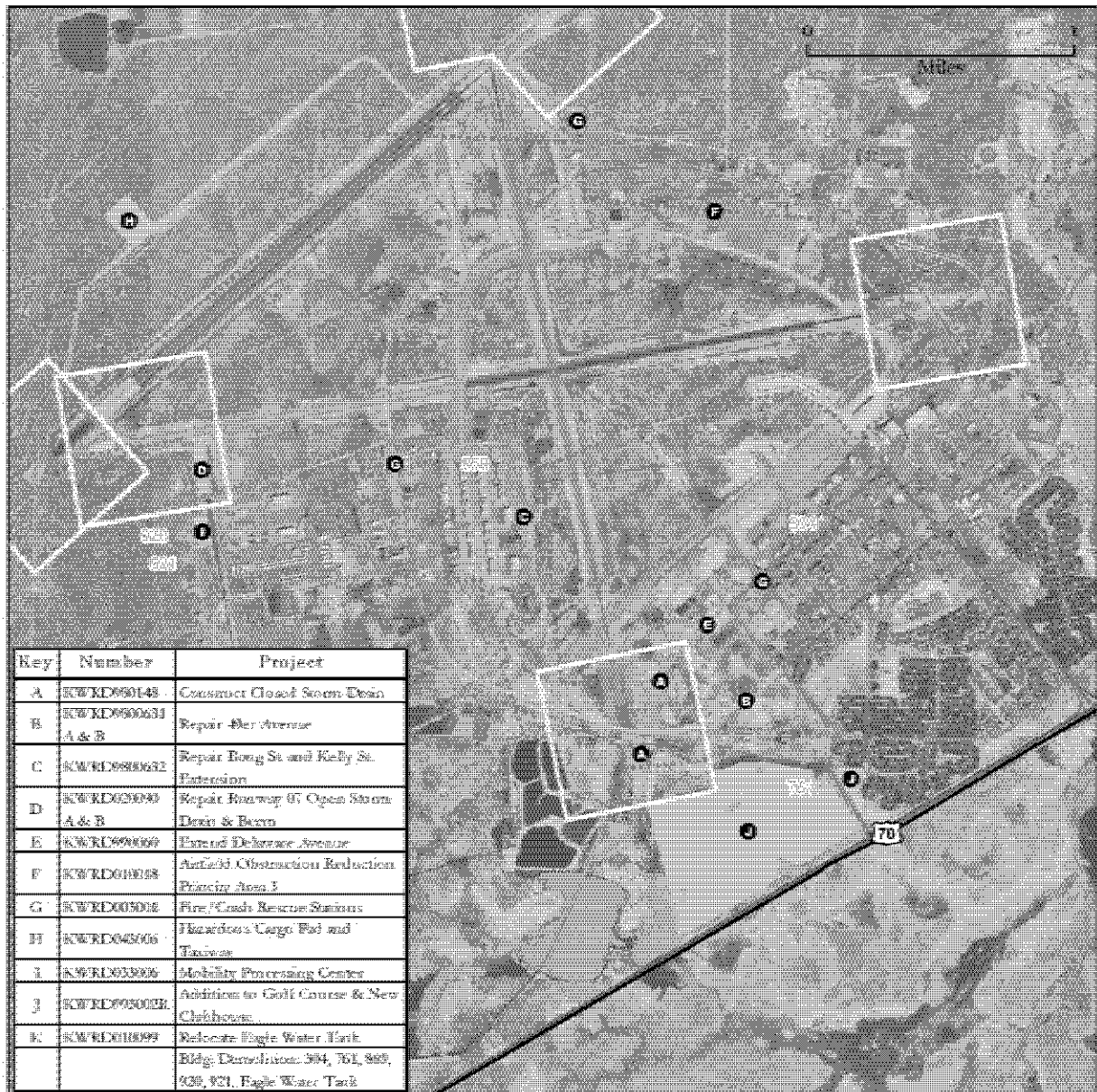
Construct Closed Storm Drain (KWRD980148). Part of this open storm drain violates runway CZ safety criteria and presents an airfield obstruction. This project would remove existing saltcedars. It would enclose that part in a buried pipe. It would fill, smooth and grade the surface to direct water away from the airfield.

Repair Runway 07 Open Storm Drain (KWRDE020090 A & B). Part of this storm drain also violates runway CZ safety criteria and presents an airfield obstruction. This project would enclose that part in a buried pipe. It would fill, smooth and grade the surface to direct water away from the airfield. It would remove an existing earth berm on the west side of the drainage ditch, using it for fill for this and other projects on Holloman.

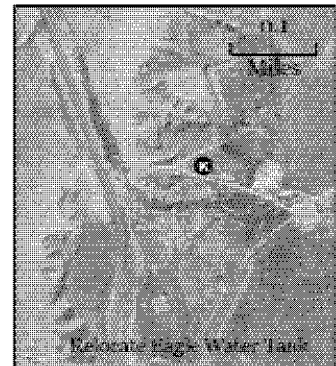
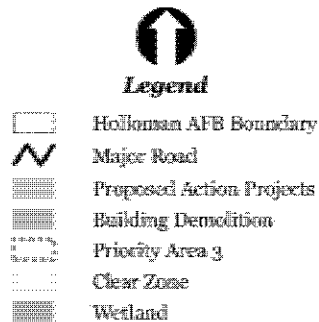
Extend Delaware Avenue (KWRD990060). This project would provide an additional east - west corridor connecting to 49er Avenue. It would extend Delaware Avenue approximately 1.6 kilometers. The extension would be 24-feet (7.3 meters) in width, with 6-feet (1.8 meter) shoulders on either side.

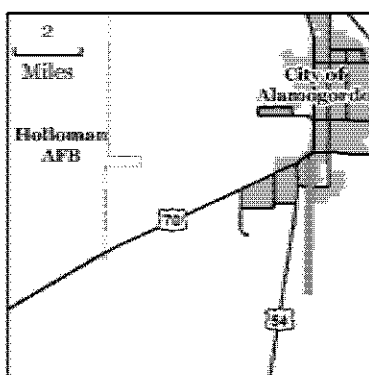
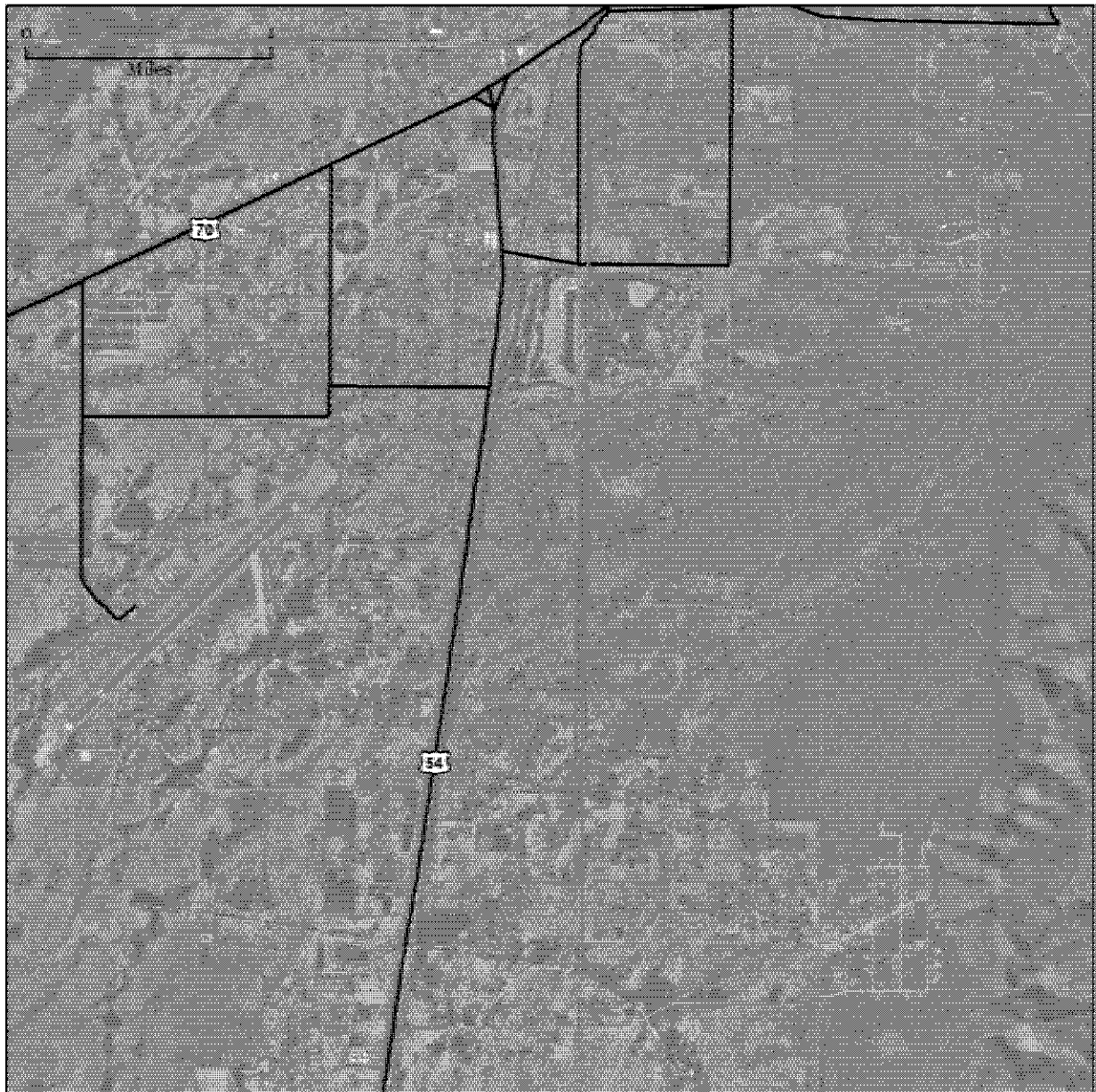
Repair Bong Street and Kelly Road Extension (KWRD9800632). This project would reduce a safety hazard by rerouting traffic flow around the aircraft taxi area. It would resurface and add shoulders to 0.6 kilometers of Bong Street. It would extend Kelly Road to intersect the north end of Bong, providing an alternate corridor to aircraft industrial facilities.

Airfield Obstruction Reduction (KWRD010018). This project would remove over 130 obstructions that violate airfield CZ safety plane criteria. Some would be demolished, some buried, some relocated and some reengineered. Obstructions include power poles, concrete pads, curbs, manholes, parking areas, small structures, and airfield equipment.



Attachment 2 Location of Proposed Projects on Holloman AFB






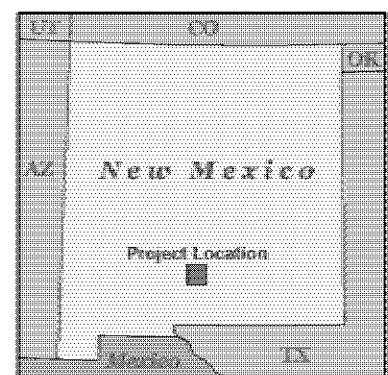


Attachment 3
Location of Prather Water Main
near Holloman AFB



Legend

-  Major Road
-  Proposed Action
-  Holloman AFB Boundary





DEPARTMENT OF THE AIR FORCE

HEADQUARTERS 49TH FIGHTER WING (ACC)
HOLLOMAN AIR FORCE BASE, NEW MEXICO

JAN 06 2005

MEMORANDUM FOR U.S. Department of the Interior
U.S. Fish and Wildlife Service
Attn: Ms. Susan MacMullin
2105 Osuna NE
Albuquerque NM 87113

FROM: 49 CES/CEV
550 Tabosa Ave
Holloman AFB NM 88330-8458

SUBJECT: Wing Infrastructure Development Outlook Environmental Assessment

1. The United States Air Force at Holloman Air Force Base is preparing three Environmental Assessments. They will evaluate the potential environmental impacts from implementing several projects on its Wing Infrastructure Development Outlook (WINDO) list.
2. We plan to complete this work in the next three years. **Attachment 1** provides synopses of the projects. **Attachments 2 and 3** show the proposed locations of the projects. Those on Holloman include: new facility construction; demolition of outdated/deteriorated facilities; roadway and infrastructure repair; and removal of airfield, airspace safety criteria obstructions. Some would directly affect designated wetlands. Some would affect the storm water network supplying the wetland environment. The single off-base project (Attachment 3) would repair approximately seven kilometers of pipeline that conveys water to the base. That line borders a City of Alamogordo road that lies seven miles east of the base.
3. We are interested in any comments you may have that will help us identify areas of concern. We will send a copy of the public documents as soon as they are available. We expect to provide them no later than February 28, 2005. We hope you will review them and provide any further comments you may have within 30 days of receipt of the public draft documents.
4. Written responses may be sent to Mr. Rich Wareing at the above address or electronically to richard.wareing@holloman.af.mil. You may also respond to (505) 572-3931. Thank you for your assistance in this matter.

DEBORAH J. HARTELL
Chief, Environmental Flight

- 3 Attachments
1. Project Synopses
 2. Location of Proposed Projects on Holloman AFB
 3. Location of Prather Water Main Project

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Global Power for America

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BILL RICHARDSON
GOVERNOR

State of New Mexico
ENVIRONMENT DEPARTMENT
Office of the Secretary
Harold Runnels Building
1190 St. Francis Drive, P.O. Box 26110
Santa Fe, New Mexico 87502-6110
Telephone (505) 827-2855



RON CURRY
SECRETARY

DERRITH WATCHMAN-MOORE
DEPUTY SECRETARY

November 8, 2004

Rich Wareing
49 CES/CEV
550 Tabosa Avenue, Bldg 55
Holloman AFB NM 88330-8458

Dear Mr. Wareing:

RE: WING INFRASTRUCTURE DEVELOPMENT OUTLOOK ENVIRONMENTAL ASSESSMENT

This transmits New Mexico Environment Department (NMED) staff comments concerning the above-referenced Environmental Assessment (EA).

Surface Water Quality

The U.S. Environmental Protection Agency (USEPA) requires National Pollutant Discharge Elimination System (NPDES) Construction General Permit (CGP) coverage for storm water discharges from construction projects (common plans of development) that will result in the disturbance (or re-disturbance) of one or more acres, including expansions, of total land area. It appears that several of these discrete projects may exceed one acre (including staging areas, etc.), and will therefore require appropriate NPDES permit coverage prior to beginning construction (small, one - five acre, construction projects may be able to qualify for a waiver in lieu of permit coverage - see Appendix D). In addition, since several of these projects appear to be grouped under one Environmental Assessment, each grouping may represent a common plan of development, and thus the entire grouping may require permit coverage.

Among other things, this permit requires that a Storm Water Pollution Prevention Plan (SWPPP) be prepared for the site and that appropriate Best Management Practices (BMPs) be installed and maintained both during and after construction to prevent, to the extent practicable, pollutants (primarily sediment, oil & grease and construction materials from construction sites) in storm water runoff from entering waters of the U.S. This permit also requires that permanent stabilization measures (revegetation, paving, etc.), and permanent storm water management measures (storm water detention/retention structures, velocity dissipation devices, etc.) be implemented post construction to minimize, in the long term, pollutants in storm water runoff from entering these waters. In addition, permittees must ensure that there is no increase in sediment yield and flow velocity from the construction site (both during and after construction) compared to pre-construction, undisturbed conditions (see Subpart 9.C.1)

Rich Wareing
November 8, 2004
Page 2

You should also be aware that EPA requires that all "operators" (see Appendix A) obtain NPDES permit coverage for construction projects. Generally, this means that at least two parties will require permit coverage. The owner/developer of this construction project who has operational control over project specifications (probably the USAF and/or the US Army Corps of Engineers in this case), the general contractor(s) who has day-to-day operational control of those activities at the site, which are necessary to ensure compliance with the storm water pollution plan and other permit conditions, and possibly other "operators" will require appropriate NPDES permit coverage for this project.

The CGP was re-issued effective July 1, 2003 (see *Federal Register*/Vol. 68, No. 126/Tuesday, July 1, 2003 pg. 39057). The CGP, Notice of Intent (NOI), Fact Sheet, and Federal Register notice can be downloaded at: <http://cfpub.epa.gov/nodes/stormwater/cgp.cfm>

Wetlands

The proposed construction of a closed storm drain at Site A (Attachment 2) and the repair of Runway 07 Open Storm Drain at Site D (Attachment 2), as well as the planned addition to the Golf Course at Site J will affect the nesting wildlife that depends on both the storm water network and sewage/wastewater effluent supplying the wetland environment located south of Site D, southwest of site A, and west of Site J. The wetland environment comprises 7 former sewage lagoons (A-G), which were closed by NMED (and EPA) in June of 2000, and Lakes Holloman and Stinky (that will be closed next year through permit modification). If the proposed constructions that Holloman says would enclose the buried pipes at Sites A and D will still allow the storm water and wastewater effluent from those sites (i.e., A, D, and J) through the "buried pipes" and the usual wastewater sources to reach the wetlands that support the nesting avian and surrounding wildlife, then there should be no issues regarding this project.

Air Quality

Dust control measures should be taken to minimize the release of particulates during construction of the proposed project. Long-term dust control can be achieved by paving, revegetating or using dust suppressants on disturbed areas following construction. Also, contractors supplying asphalt for the project must have current air quality permits.

Compliance with NMED Air Quality Bureau requirements concerning asbestos removal is required. In addition to packaging and disposal of asbestos, Holloman must meet the requirements for asbestos demolition and removal. Advance notification to NMED is required. For additional information regarding these requirements, please contact Royce Wyrick or Ron Duffy in Santa Fe at (505) 827-1494. Additional information regarding asbestos can be found on our web site at <http://www.nmenv.state.nm.us/aqb/asbestos/asbestos.html>.

Petroleum Storage Tanks

The Petroleum Storage Tank Bureau knows of twelve former or current tank facilities, four of which have experienced releases, within the proposed project area for infrastructure development at Holloman Air Force Base. Some of the sites listed may not be affected by this project. Please check the local street address to see if this information applies. In addition to the sites listed below, there are several sites on the Air Force Base itself. Several street names were not noted on the original information request for this project.

Rich Wareing
November 8, 2004
Page 3

There may be wells or remediation equipment installed at the leak sites. If the design for the proposed infrastructure development intersects any part of a remediation system or monitoring well, please contact the bureau to coordinate construction with preservation or modification of the remediation equipment. If contaminated soil or water is encountered during construction, all monitoring, handling and disposal requirements must be met in order to protect workers, the public and the environment, from contaminants. You can contact the PST Bureau at 505 984-1741.

Tank Facility Name	Address	Leak Reported
Holloman Fina	US Hwy 70 W	Yes
Bekins Storage	Hwy 70 & West Airport	Yes
Dyads Service Station	1420 Hwy 70 W	Yes
Econ 143	649 Hwy 70 W	No
J&J Mini Mart #11	901 Hwy 70 W	No
Phillips 66 #023410	US 54/70	No
Rental Service Corp #405	1437 US Hwy 70 W	No
Michael C. Shyne	544 Hwy 70 W	No
US 70 West Food Mart	1445 Hwy 70 W	Yes
White Sands Natl Monument	19955 US Hwy 70 W	No
J&J Mini Mart #15	1957 US Hwy 54 S	No
ST Services	6026 Hwy 54 S	No

We appreciate the opportunity to comment on this project.

Sincerely,



Cedi Gibas, Ph.D.
Environmental Impact Review Coordinator

NMED File No. 1971ER

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GOVERNOR
Bill Richardson



STATE OF NEW MEXICO
DEPARTMENT OF GAME & FISH

One Wildlife Way
Post Office Box 25112
Santa Fe, NM 87504
Phone: (505) 419-9900
Fax: (505) 476-8134

DIRECTOR AND SECRETARY
TO THE COMMISSION
Bruce C. Thompson

STATE GAME COMMISSION
Elly Bender, Chairman
Albuquerque, NM

Alfredo Martinez, Vice-Chairman
Alameda, NM

David Henderson
Santa Fe, NM

Jennifer Ashley Martinez
Los Chiles, NM

Peter Papp
El Estero, NM

Dr. Tom Arnes
Albuquerque, NM

Leo Skink
Hobbs, NM

Visit our website at www.nmstate.gov/nmif
For basic information or to order free publications: 1-800-842-8378

November 15, 2004

Deborah Hartell
Chief, Environmental Flight
49 CES/CEV
550 Tabosa Avenue, Bldg. 55
Holloman AFB, NM 88330-8458

Re: Wing infrastructure development outlook environmental assessment.
NMGF No. 9681

Dear Ms. Hartell,

In response to your letter dated October 21, 2004, regarding the above referenced project, the Department of Game and Fish (Department) does not anticipate significant impacts to wildlife or sensitive habitats. For your information, we have enclosed a list of sensitive, threatened and endangered species that occur in Otero County.

For more information on listed and other species of concern, contact the following sources:

1. Species Accounts: <http://fwic.fw.vt.edu/states/nm.htm>
2. Species Searches: <http://nmnhp.unm.edu/bisonnm/bisonquery.php>
3. New Mexico Wildlife of Concern by Counties List:
http://www.wildlife.state.nm.us/conservation/share_with_wildlife/documents/species_ofconcern.pdf
4. Habitat Handbook Project Guidelines:
http://wildlife.state.nm.us/conservation/habitat_handbook/index.htm
5. For custom, site-specific database searches on plants and wildlife. Go to Data then to Free On-Line Data and follow the directions go to: <http://nmnhp.unm.edu>
6. New Mexico State Forestry Division (505-827-5830) or
<http://nmrareplants.unm.edu/index.html> for state-listed plants.
7. For the most current listing of federally listed species always check the U.S. Fish and Wildlife Service at (505-346-2525) or <http://ifw2es.fws.gov/EndangeredSpecies/lists/>

Mrs. Deborah Hartell

Page 2

11/16/2004

Thank you for the opportunity to review and comment on your project. If you have any questions, please contact Mark Watson at (505) 476-8101 or mwatson@state.nm.us

Sincerely,



Janell Ward, Assistant Chief
Conservation Services Division

JW/nd

cc: Susan MacMullin, New Mexico Ecological Services, USFWS
Roy Hayes, SE Area Operations Chief, NMCF

New Mexico Species of Concern - Otero County Page 1 of 1

[illegible]

Biota Information System Of New Mexico (BISON-NM) April 1983- Dept. of Game & Fish,
Conservation Services Div.

New Mexico Species of Concern - Otero County Page 3 of 3

Common Name.....	SCIENTIFIC NAME.....	FWS... ESA	SH... NCA	FS... FJ	BLM... NM	NH... B&H	FWS... SOC
Cave Myotis Bat	Myotis velifer	-	-	#	#	#	-
Long-legged Myotis Bat	Myotis volans interior	-	-	-	#	#	-
Fringed Myotis Bat	Myotis thysanodes thysanodes	-	-	-	#	#	-
Spotted Bat	Euderma maculatum	-	T	#	#	-	-
Pale Townsend's Big-eared Bat	Blacotus townsendii pallidus	-	-	#	#	#	#
Big Free-tailed Bat	Myotis myotis	-	-	-	#	#	-
Pennsco Least Chipmunk	Tamias minimus arizonensis	-	#	#	-	#	#
Gray-footed Chipmunk	Tamias caninus caninus	-	-	-	#	-	-
Gray-footed Chipmunk	Tamias caninus caninus	-	-	-	#	#	-
Rock Squirrel	Spermophilus variegatus tularosa	-	-	-	-	#	#
AE Black-tailed Prairie Dog	Cynomys ludovicianus arizonensis	C	#	-	#	#	-
Guadalupe Pocket Gopher	Thomomys bottae guadalupensis	-	-	#	#	#	#
Botta's Pocket Gopher	Thomomys bottae tularosa	-	-	-	-	#	#
Desert Pocket Gopher	Geomys arizonae arizonae	-	-	-	#	-	#
Desert Pocket Gopher	Geomys arizonae brevirostris	-	-	-	-	#	#
Plains Pocket Mouse	Perognathus flavescens gypsi	-	-	-	-	#	#
Rock Pocket Mouse	Chaetodipus intermedius ater	-	-	-	-	#	#
New Mexican Jumping Mouse	Zapus luteus luteus	-	T	#	#	-	#
Hingtail	Saxatilis arizonae	-	-	#	-	#	-
Western Spotted Skunk	Spilogale gracilis	-	-	-	-	#	-
Common Hog-nosed Skunk	Conopatus maculatus	-	-	-	-	#	-
Succinea Mountainsnail	Orchelimum neomexicanum	-	-	-	-	#	#
Woodlandsnail	Ashmunella amblya cornudasensis	-	-	-	#	#	-
Cleodreft Checkerspot Butterfly	Ocidryas anicia cleodreftii	FE	-	-	-	#	#

NATIVE SPECIES APPARENTLY NO LONGER OCCURRING IN OTERO COUNTY

Mexican Gray Wolf	Canis lupus baileyi	(extirpated from NM)
Grizzly Bear	Ursus arctos	(extinct)
Jaguar	Panthera onca arizonensis	(extinct)
Merriam's Elk	Corvus sinuatus merriami	
Desert Bighorn Sheep	Ovis canadensis montanus	

Wareing Richard J Civ 49 CES/CEV

From: Bill_Conrod@nps.gov
Sent: Friday, October 22, 2004 10:09 AM
To: richard.wareing@holloman.af.mil
Subject: Fw: Undeliverable: EA scoping letter

----- Message from Bill_Conrod@nps.gov on Fri, 22 Oct 2004 09:26:48 -0600

To: richard.wareing@holloman.af.mil
Subject: EA scoping letter

Mr. Wareing:

I reviewed a letter (no date, received 21 OCT 04) announcing scoping for an EA on a number of HAFB construction projects over the next three years. These don't appear to have potential effect on White Sands National Monument. If there would be an action changing air traffic over the monument, we would be interested. Let me know if you need a more formal response than this email.

Thanks,
Bill Conrod
Natural Resource Specialist
White Sands National Monument

Bill called. He received the general notification letter on the WINDO EA Projects. I confirmed this email response was sufficient. I assured him there was nothing involved with airspace. That's his only concern.

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United States Department of the Interior

FISH AND WILDLIFE SERVICE
 New Mexico Ecological Services Field Office
 2105 Osuna NE
 Albuquerque, New Mexico 87113
 Phone: (505) 346-2525 Fax: (505) 346-2542

February 7, 2005

Cons. # 2-22-05-I-169

Deborah J. Hartell, Chief Environmental Flight
 Attention: Rich Wareing
 U.S. Department of the Air Force
 49 CES/CEV
 550 Taboosa Ave
 Holloman AFB, New Mexico 88330-8458

Dear Ms. Hartell:

Thank you for your January 6, 2005, letter requesting information on threatened or endangered species or important wildlife habitats that could be affected by several proposed Holloman Air Force Base wing infrastructure projects. The proposed projects would include: facility demolition and construction; roadway and infrastructure repair; removal of airfield and airspace safety obstructions; and repairs to approximately seven kilometers of underground water pipeline. Construction would directly affect designated wetlands and the storm water network supplying them. The U.S. Air Force is currently preparing three Environmental Assessments (EAs) that will evaluate the potential environmental impacts of the proposed projects. The proposed projects would be located on and adjacent to Holloman Air Force Base in Otero County, New Mexico.

We have enclosed a current list of federally endangered, threatened, proposed, and candidate species, and species of concern that may be found in Otero County, New Mexico.¹ Under the Endangered Species Act, as amended (Act), it is the responsibility of the Federal action agency or its designated representative to determine if a proposed action "may affect" endangered, threatened, or proposed species, or designated critical habitat, and if so, to consult with us further. If your action area has suitable habitat for any of these species, we recommend that species-specific surveys be conducted during the flowering season for plants and at the appropriate time for wildlife to evaluate any possible project-related impacts. Please keep in mind that the scope of federally listed species

¹ Additional information about these species is available on the internet at
<http://nmrareplants.unm.edu>, <http://nrmnhp.unm.edu/bisonnm/bisonquery.php>, and
<http://ifw2es.fws.gov/endangeredspecies>.

Deborah J. Hartell, Chief Environmental Flight

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compliance also includes any interrelated or interdependent project activities (e.g., equipment staging areas, offsite borrow material areas, or utility relocations) and any indirect or cumulative effects.

Candidates and species of concern have no legal protection under the Act and are included in this document for planning purposes only. We monitor the status of these species. If significant declines are detected, these species could potentially be listed as endangered or threatened. Therefore, actions that may contribute to their decline should be avoided. We recommend that candidates and species of concern be included in your surveys.

Under Executive Orders 11988 and 11990, Federal agencies are required to minimize the destruction, loss, or degradation of wetlands and floodplains, and preserve and enhance their natural and beneficial values. We recommend you contact the U.S. Army Corps of Engineers for permitting requirements under section 404 of the Clean Water Act if your proposed action could impact floodplains or wetlands. These habitats should be conserved through avoidance, or mitigated to ensure no net loss of wetlands function and value.

The Migratory Bird Treaty Act (MBTA) prohibits the taking of migratory birds, nests, and eggs, except as permitted by the U.S. Fish and Wildlife Service. To minimize the likelihood of adverse impacts to all birds protected under the MBTA, we recommend construction activities occur outside the general migratory bird nesting season of March through August, or that areas proposed for construction during the nesting season be surveyed, and when occupied, avoided until nesting is complete.

With regard to fish and wildlife resources, the EAs should assess the impacts of the proposed projects and their alternatives on species populations and their habitats, with an emphasis on wetlands, waters of the United States, and native fish, wildlife, and plants. The EAs should also evaluate the direct and indirect impacts to ground and surface water resources associated with the proposed projects.

We suggest you contact the New Mexico Department of Game and Fish, and the New Mexico Energy, Minerals, and Natural Resources Department, Forestry Division for information regarding fish, wildlife, and plants of State concern.

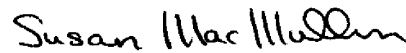
Thank you for your concern for endangered and threatened species and New Mexico's wildlife habitats. We appreciate the opportunity to comment early in the planning process and look forward to providing any information or technical assistance we can. We also look forward to reviewing

Deborah J. Hartell, Chief Environmental Flight

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draft EAs as they become available. In future correspondence regarding this project, please refer to consultation # 2-22-05-I-169. If you have any questions about the information in this letter, please contact John Branstetter at the letterhead address or at (505) 346-2525, ext. 4753.

Sincerely,



Susan MacMullin
Field Supervisor

Enclosure

cc: (w/o enc)

Director, New Mexico Department of Game and Fish, Santa Fe, New Mexico

Director, New Mexico Energy, Minerals, and Natural Resources Department, Forestry Division,
Santa Fe, New Mexico

FEDERAL ENDANGERED, THREATENED,
PROPOSED, AND CANDIDATE SPECIES
AND SPECIES OF CONCERN IN NEW MEXICO
Consultation Number 2-22-05-I-169
February 7, 2005

Otero County

ENDANGERED

Black-footed ferret (*Mustela nigripes*)**
Interior least tern (*Sterna antillarum*)
Northern aplomado falcon (*Falco femoralis septentrionalis*)
Southwestern willow flycatcher (*Empidonax traillii extimus*)
Kuenzler hedgehog cactus (*Echinocereus fendleri* var. *kuenzleri*)
Sacramento prickly poppy (*Argemone pleiacantha* ssp. *pinnatisecta*)
Todsens's pennyroyal (*Hedeoma todsenii*)

THREATENED

Bald eagle (*Haliaeetus leucocephalus*)
Mexican spotted owl (*Strix occidentalis lucida*) with critical habitat
Sacramento Mountains thistle (*Cirsium vinaceum*)

SPECIES OF CONCERN

Black-tailed prairie dog (*Cynomys ludovicianus*)
Desert pocket gopher (*Geomys bursarius arenarius*)
Guadalupe southern pocket gopher (*Thomomys umbrinus guadalupensis*)
New Mexican meadow jumping mouse (*Zapus hudsonius luteus*)
Penasco (Least) chipmunk, (*Tamias minimus atristriatus*)
Townsend's big-eared bat (*Corynorhinus townsendii*)
White Sands woodrat (*Neotoma micropus leucophaea*)
American peregrine falcon (*Falco peregrinus anatum*)
Arctic peregrine falcon (*Falco peregrinus tundrius*)
Baird's sparrow (*Ammodramus bairdii*)
Bell's vireo (*Vireo bellii*)
Black tern (*Chlidonias niger*)
Mountain plover (*Charadrius montanus*)
Northern goshawk (*Accipiter gentilis*)
Western burrowing owl (*Athene cunicularia hypugea*)
Yellow-billed cuckoo (*Coccyzus americanus*)
Rio Grande cutthroat trout (*Oncorhynchus clarki virginalis*)
White Sands pupfish (*Cyprinodon tularosa*)
Sacramento mountain salamander (*Aneides hardii*)
Sacramento Mountains checkerspot butterfly (*Euphydryas anicia cloudcrofti*)
Sacramento Mountains silverspot butterfly (*Speyeria atlantis capitanensis*)

SPECIES OF CONCERN continued:

Sacramento Mountains blue butterfly (*Icaricia icarioides*) new subspecies
 Alamo beard tongue (*Penstemon alamosensis*)
 Desert night-blooming cereus (*Cereus greggii* var. *greggii*)
 Goodding's onion (*Allium gooddingii*)
 Guadalupe rabbitbrush (*Chrysothamnus nauseosus* var. *texensis*)
 Gypsum scalebroom (*Lepidospartum burgessii*)
 Sierra Blanca cliff daisy (*Chaetopappa elegans*)
 Villard's pincushion cactus (*Escobaria villardii*)
 Wright's marsh thistle (*Cirsium wrightii*)

Index

- Endangered = Any species which is in danger of extinction throughout all or a significant portion of its range.
- Threatened = Any species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.
- Candidate = Candidate Species (taxa for which the Service has sufficient information to propose that they be added to list of endangered and threatened species, but the listing action has been precluded by other higher priority listing activities).
- Species of Concern = Taxa for which further biological research and field study are needed to resolve their conservation status OR are considered sensitive, rare, or declining on lists maintained by Natural Heritage Programs, State wildlife agencies, other Federal agencies, or professional/academic scientific societies. Species of Concern are included for planning purposes only.
- ** = Survey should be conducted if project involves impacts to prairie dog towns or complexes of 200-acres or more for the Gunnison's prairie dog (*Cynomys gunnisoni*) and/or 80-acres or more for any subspecies of Black-tailed prairie dog (*Cynomys ludovicianus*). A complex consists of two or more neighboring prairie dog towns within 4.3 miles (7 kilometers) of each other.

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13-2005 05:12PM FROM: U.S. FISH AND WILDLIFE

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T-191 P. 002/003 F-941



United States Department of the Interior

FISH AND WILDLIFE SERVICE
 New Mexico Ecological Services Field Office
 2105 Osuna NE
 Albuquerque, New Mexico 87111
 Phone: (505) 346-2525 Fax: (505) 346-2542

April 13, 2005

Cens. # 2-22-05-I-169

A. David Budak, Deputy Base Civil Engineer
 Attention: WINDO EA
 U.S. Department of the Air Force
 49 FW/PA
 490 1st Street, Room 280
 Holloman AFB, NM 88330-8287

Dear Mr. Budak:

Thank you for your March 15, 2005, letter requesting our review of the draft Environmental Assessment (EA) for the Holloman Air Force Base Wing Infrastructure Development Outlook Projects. The proposed projects would include: facility demolition and construction; roadway and infrastructure repair; removal of airfield and airspace safety obstructions; and repairs to approximately seven kilometers of underground water pipeline. Construction would directly affect designated wetlands and the storm water network supplying them. The proposed projects would be located on and adjacent to Holloman Air Force Base in Otero County, New Mexico. The U.S. Fish and Wildlife Service (Service) has reviewed the EA for impacts to fish and wildlife resources and offer the following comments.

According to the EA, the proposed project would result in the loss of 11 acres of existing wetlands. To offset project related wetland losses the Service recommends that two acres of wetlands be created for each acre lost as a result of the project. We also recommend that a long-term monitoring plan be developed to ensure that project related wetland losses are successfully mitigated.

To minimize erosion, we recommend that the best management practices proposed on pages 4-4 through 4-5 of the EA be incorporated into the contractors work plan. To minimize the likelihood of adverse impacts to all birds protected under the Migratory Bird Treaty Act, we recommend construction activities occur outside the general migratory bird nesting season of March through August, or that areas proposed for construction during the nesting season be surveyed, and when occupied, avoided until nesting is complete.

13-2005 05:12PM FROM-US FISH AND WILDLIFE +5053462542 T-191 P.003/003 F-941

A. David Budak, Deputy Base Civil Engineer 2

The proposed project would also include the demolition of several buildings and an elevated water tank. Prior to demolition, we recommend that these structures be surveyed to determine if they are being used as bat roosts. To offset project related losses of roosting habitat, we recommend that bat boxes be installed in appropriate locations in or adjacent to the project area (e.g., near the wetlands in the golf course area).

Thank you for your concern for New Mexico's wildlife and their habitats. In future correspondence regarding this project, please refer to consultation # 2-22-05-1-169. If you have any questions about the information in this letter, please contact John Branstetter at the letterhead address or at (505) 346-2525, ext. 4753.

Sincerely,

Brian Harker
for Susan MacMullin
Field Supervisor

cc:
Director, New Mexico Department of Game and Fish, Santa Fe, New Mexico
Director, New Mexico Energy, Minerals, and Natural Resources Department, Forestry
and Resources Conservation Division, Santa Fe, New Mexico

GOVERNOR
Bill Richardson



DIRECTOR AND SECRETARY
TO THE COMMISSION
Bruce C. Thompson

STATE OF NEW MEXICO
DEPARTMENT OF GAME & FISH

One Wildlife Way
Post Office Box 25112
Santa Fe, NM 87504
Phone: (505) 476-8008
Fax: (505) 476-8128

Visit our website at www.wildlife.state.nm.us
For basic information or to order free publications: 1-800-862-9310.

STATE GAME COMMISSION
Guy Riordan, Chairman
Albuquerque, NM

Dr. Tom Arvas, Vice-Chairman
Albuquerque, NM

Alfredo Montoya, Commissioner
Alcalde, NM

David Henderson, Commissioner
Santa Fe, NM

Peter Pino, Commissioner
Zia Pueblo, NM

Leo Sims, Commissioner
Hotbs, NM

M. H. "Dutch" Salmon, Commissioner
Silver City, NM

April 6, 2005

49 FW/PA
Attn: WINDO EA
490 1st St., Room 280
Holloman AFB, NM 88330-8287

Re: Holloman AFB Wing Infrastructure Development Outlook (WINDO) Projects,
Draft Environmental Assessment
NMGF Doc. No. 10000
NMED File No 1971ER

Dear Sirs:

The Department of Game and Fish has reviewed the Draft Environmental Assessment (DEA) for the above-referenced projects. The DEA identifies the anticipated loss of 11 acres of wetlands under the preferred alternative. The DEA states that the loss of the identified 11 acres of wetlands along open storm drains would have "...little impact on habitat or wildlife" (p. 4-5). However, comments in the DEA Appendix B from the New Mexico Environment Department (submitted during the scoping phase of this project) suggest that the projects that would enclose and change discharge points for existing open stormwater drains could have significant impacts to wildlife by reducing or eliminating stormwater discharge to other important aquatic habitats on Holloman AFB, such as Holloman and Stinky Lakes. These delineated wetlands are important stopover and possibly nesting sites for migratory waterfowl and shorebirds.

The Department supports mitigative measures for the loss of these 11 acres of wetlands by either 1) allowing the stormwater discharge to be routed to the same locations, which may actually increase the size of existing wetlands at current discharge points, due to the increased runoff from the construction of additional impermeable surfaces associated with other WINDO projects; or 2) creation of additional wetlands on HAFB to mitigate for the loss of these 11 acres. It is the position of the Department that mitigative actions are required by Executive Order 11990 if wetlands are impacted regardless of the need for 404/401 permit.

We appreciate the opportunity to comment on this project and request that the Department is kept informed on the decisions regarding the impacted wetlands associated with this project. Should you have any questions regarding our comments, please contact Mark Watson, Habitat Specialist, of my staff at (505) 476-8115, or <mwatson@state.nm.us>.

Sincerely,

Lisa Kirkpatrick, Chief
Conservation Services Division

LK/MLW

WINDO Projects

-2-

April 6, 2005

CC: Gedi Cibas, New Mexico Environment Department,
Susan MacMullin, Ecological Services Field Supervisor, USFWS
Leslie McWhirter, Project Biologist, U.S. Army Corps of Engineers
Roy Hayes, Southeast Area Operations Supervisor, NMGF
Mark Watson, Conservation Services Habitat Specialist, NMGF

WINDO EA MAILING LIST

Regional Director
Bureau of Indian Affairs Intermountain Region
PO Box 26567
Albuquerque, NM 87125

Cliff Spencer
Park Superintendent
White Sands National Monument
P.O. Box 1086
Holloman AFB, NM 88330

Estelle Bulka
US Environmental Protection Agency, R6
Office of Planning and Coordination (6EN-XP)
1445 Ross Avenue
Dallas, TX 75202-2733

Jim Mace
US Army Corps of Engineers
El Paso Regulatory Office
P.O. Box 6096
Fort Bliss, TX 79906-0096

Ed Carr
Executive Director
Alamogordo Chamber of Commerce
1301 N. White Sands Boulevard
Alamogordo, NM 88310

Kak Slick
State of New Mexico Office of Cultural Affairs
Historic Preservation Division
La Villa Rivera Building, Room 320
228 E. Palace Avenue
Santa Fe, NM 87501

Bob Sivinski
NMDEMNR
Forestry Resources Conservation Division
1220 St. Francis Drive
Santa Fe, NM 87504-1948

Lisa Kirkpatrick
Conservation Services Division
New Mexico Department of Game and Fish
PO Box 25112
Santa Fe, NM 87504

Gedi Cebas
Environmental Impact Review Coordinator
New Mexico Environment Department
Harold Runnels Building
1190 St. Francis Drive, N4050
Santa Fe, NM 87502

Ned Farquhar
NM SPOC
Energy and Environmental Policy Advisor
State Capitol Building
Suite 400
Santa Fe, NM 87501

Pat McCourt
City Manager
City of Alamogordo
843 San Miguel Avenue
Alamogordo, NM 88310-5360

Ruth Hooser
Otero County Administrator
1000 New York Avenue, Room 101
Alamogordo, NM 88310

Genie Harshey
President
Alamogordo Chamber of Commerce
1301 N. White Sands Boulevard
Alamogordo, NM 88310

Dave Gottula
President, Committee of Fifty
1301 N. White Sands Blvd.
Alamogordo, NM 88310

Toots Green
Committee of Fifty
1019 Canyon Road
Alamogordo, NM 88310

Donald Carroll
Mayor
1376 E. 9th St.
Alamogordo, NM 88310

MeLynn Patillo
Alamogordo Forum
PO Box 1749
Alamogordo, NM 88311-1749

Ron Griggs
City Commissioner
1376 E. 9th St.
Alamogordo, NM 88310

Bob Moore
Otero County Commission
1000 New York Avenue
Alamogordo, NM 88310

Susan MacMullin
U.S. Department of the Interior
U.S. Fish and Wildlife Service
2105 Osuna NE
Albuquerque, NM 87113

APPENDIX C
BEST MANAGEMENT PRACTICES

BEST MANAGEMENT PRACTICES (BMPS)

Any Clean Water Act (CWA) permitting will require implementation of certain construction BMPs to reduce water quality impacts. BMPs include standard erosion and sediment controls (silt fence, rock check dams, and/or sediment traps are preferred for our highly erosive silty loam soils). Protection of downstream-designated waters may be best accomplished by use of rock check dams and run-downs, which can also remain as permanent stabilization. Equipment storage should be in an area or method to preclude leaking fuels or oils being conveyed to designated waters of the U.S. (e.g. bermed area, use of drip pans or absorbent pads, secondary containment for fuel/oil tanks, etc.). BMP methods are summarized below.

- Culverts and/or rip-rap at drainage crossings - The use of culverts and/or rip-rap at these crossings is recommended to manage or reduce erosive forces. This will protect water quality reduce undercutting and sinkholes, thus ensuring improvements are not damaged by storm events. Any rock, shaping, or culverts recommended as a construction period measure should be left in place as a permanent erosion control feature.
- Scheduling - Completion of soil disturbing activities during the mid September to early June time period will avoid peak rainfall periods. Light rains in the dry seasons typically do not create the erosive runoff conditions seen in the summer monsoon season.
- Silt Fence - USACE specification section 01356, "Storm Water Pollution Prevention Measures" is a good guide for silt fence construction. Properly installed with a backwire, tight stretch, proper material, and proper burial depth, it can be a very effective erosion control. Bench intervals with a 'V' configuration opening upstream should be limited to 300-ft along shallow slopes, less along steeper slopes.
- Gravel mulch and Rock Check Dams - Rock is a preferred BMP for erosion protection on HAFB soils. Gravel mulch, or a seeded mix of ¾-inch minus crushed gravel is recommended as both a construction period and permanent erosion control measure. Rock check dams of angular 4-inch to 6-inch material spanning small devegetated swales and ditches with a minimum 1-ft depth can be surprisingly effective at retaining eroded material and retaining or re-establishing hydrology.
- Sedimentation pond(s) and Drainage Improvements - For this project it may be advantageous to provide long term drainage improvements as part of the short-term construction BMPs. These could in fact be performed in lieu of area-specific construction-period controls in some cases.
- Hay bales are not recommended.

Although fugitive dust is not regulated by current air quality laws, BMPs will need to be employed due to the project location. Large amounts of airborne dust or smoke from construction activities would impact airfield operations on Runway 16/34. Disturbed soil, particularly dirt and/or gravel roads need to be regularly maintained by water trucks. Impacts of open burning of noxious weeds will be minimized by employing the BMPs in the New Mexico Environment Department's (NMED) Smoke Management Program. Prior to construction or demolition at any site, a construction lay down area and haul route would be established and coordinated with 49 FW civil engineering personnel.

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APPENDIX D
AICUZ LAND COMPATIBILITY GUIDELINES

LAND USE COMPATIBILITY

LAND USE		ACCIDENT POTENTIAL ZONES			NOISE ZONES			
SLUCM NO.	NAME	CZ	APZ I	APZ II	65-70	70-75	75-80	80+
10	Residential							
11	Household units							
11.11	Single units; detached	N	N	Y ¹	A ¹¹	B ¹¹	N	N
11.12	Single units; semidetached	N	N	N	A ¹¹	B ¹¹	N	N
11.13	Single units; attached row	N	N	N	A ¹¹	B ¹¹	N	N
11.21	Two units; side-by-side	N	N	N	A ¹¹	B ¹¹	N	N
11.22	Two units; one above the other	N	N	N	A ¹¹	B ¹¹	N	N
11.31	Apartments; walk up	N	N	N	A ¹¹	B ¹¹	N	N
11.32	Apartments; elevator	N	N	N	A ¹¹	B ¹¹	N	N
12	Group quarters	N	N	N	A ¹¹	B ¹¹	N	N
13	Residential hotels	N	N	N	A ¹¹	B ¹¹	N	N
14	Mobile home parks or courts	N	N	N	N	N	N	N
15	Transient lodgings	N	N	N	A ¹¹	B ¹¹	C ¹¹	N
16	Other residential	N	N	N ¹	A ¹¹	B ¹¹	N	N
20	Manufacturing							
21	Food & kindred products; manufacturing	N	N ²	Y	Y	Y ¹²	Y ¹³	Y ¹⁴
22	Textile mill products; manufacturing	N	N ²	Y	Y	Y ¹²	Y ¹³	Y ¹⁴
23	Apparel and other finished products made from fabrics, leather, and similar materials; manufacturing	N	N	N ²	Y	Y ¹²	Y ¹³	Y ¹⁴
24	Lumber and wood products (except furniture); manufacturing	N	Y ²	Y	Y	Y ¹²	Y ¹³	Y ¹⁴
25	Furniture and fixtures; manufacturing	N	Y ²	Y	Y	Y ¹²	Y ¹³	Y ¹⁴
26	Paper & allied products; manufacturing	N	Y ²	Y	Y	Y ¹²	Y ¹³	Y ¹⁴
27	Printing, publishing, and allied industries	N	Y ²	Y	Y	Y ¹²	Y ¹³	Y ¹⁴
28	Chemicals and allied products; manufacturing	N	N	N ²	Y	Y ¹²	Y ¹³	Y ¹⁴
29	Petroleum refining and related industries	N	N	Y	Y	Y ¹²	Y ¹³	Y ¹⁴
30	Manufacturing							
31	Rubber and misc. plastic products; manufacturing	N	N ²	N ²	Y	Y ¹²	Y ¹³	Y ¹⁴
32	Stone, clay and glass products manufacturing	N	N ²	Y	Y	Y ¹²	Y ¹³	Y ¹⁴
33	Primary metal industries	N	N ²	Y	Y	Y ¹²	Y ¹³	Y ¹⁴
34	Fabricated metal products; manufacturing	N	N ²	Y	Y	Y ¹²	Y ¹³	Y ¹⁴

LAND USE		ACCIDENT POTENTIAL ZONES			NOISE ZONES			
SLUCM NO.	NAME	CZ	APZ I	APZ II	65-70	70-75	75-80	80+
35	Professional, scientific, and controlling instruments; photographic and optical goods; watches and clocks manufacturing	N	N	N ²	Y	A	B	N
39	Miscellaneous manufacturing	N	Y ²	Y ²	Y	Y ¹²	Y ¹³	Y ¹⁴
40	Transportation, communications and utilities							
41	Railroad, rapid rail transit and street railroad transportation	N ³	Y ⁴	Y	Y	Y ¹²	Y ¹³	Y ¹⁴
42	Motor vehicle transportation	N ³	Y	Y	Y	Y ¹²	Y ¹³	Y ¹⁴
43	Aircraft transportation	N ³	Y ⁴	Y	Y	Y ¹²	Y ¹³	Y ¹⁴
44	Marine craft transportation	N ³	Y ⁴	Y	Y	Y ¹²	Y ¹³	Y ¹⁴
45	Highway & street right-of-way	N ³	Y	Y	Y	Y ¹²	Y ¹³	Y ¹⁴
46	Automobile parking	N ³	Y ⁴	Y	Y	Y ¹²	Y ¹³	Y ¹⁴
47	Communications	N ³	Y ⁴	Y	Y	A ¹⁵	B ¹⁵	N
48	Utilities	N ³	Y ⁴	Y	Y	Y	Y ¹²	Y ¹³
49	Other transportation communications and utilities	N ³	Y ⁴	Y	Y	A ¹⁵	B ¹⁵	N
50	Trade							
51	Wholesale trade	N	Y ²	Y	Y	Y ¹²	Y ¹³	Y ¹⁴
52	Retail trade-building materials, hardware and farm equipment	N	Y ²	Y	Y	Y ¹²	Y ¹³	Y ¹⁴
53	Retail trade-general merchandise	N	N ²	Y ²	Y	A	B	N
54	Retail trade-food	N	N ²	Y ²	Y	A	B	N
55	Retail trade-automotive, marine craft, aircraft and accessories	N	Y ²	Y ²	Y	A	B	N
56	Retail trade-apparel and accessories	N	N ²	Y ²	Y	A	B	N
57	Retail trade-furniture, home furnishings and equipment	N	N ²	Y ²	Y	A	B	N
58	Retail trade-eating and drinking establishments	N	N	N ²	Y	A	B	N
59	Other retail trade	N	N ²	Y ²	Y	A	B	N
60	Services							
61	Finance, insurance and real estate services	N	N	Y ⁶	Y	A	B	N
62	Personal services	N	N	Y ⁶	Y	A	B	N
62.4	Cemeteries	N	Y ⁷	Y ⁷	Y	Y ¹²	Y ¹³	Y ^{14,21}
63	Business services	N	Y ⁸	Y ⁸	Y	A	B	N
64	Repair services	N	Y ²	Y	Y	Y ¹²	Y ¹³	Y ¹⁴
65	Professional services	N	N	Y ⁶	Y	A	B	N
65.1	Hospitals, nursing homes	N	N	N	A*	B*	N	N
65.1	Other medical facilities	N	N	N	Y	A	B	N

LAND USE		ACCIDENT POTENTIAL ZONES			NOISE ZONES			
SLUCM NO.	NAME	CZ	APZ I	APZ II	65-70	70-75	75-80	80+
66	Contract construction services	N	Y ⁶	Y	Y	A	B	N
67	Governmental services	N	N	Y ⁶	Y*	A*	B*	N
68	Educational services	N	N	N	A*	B*	N	N
69	Miscellaneous services	N	N ²	Y ²	Y	A	B	N
70	Cultural, entertainment and recreational							
71	Cultural activities (including churches)	N	N	N ²	A*	B*	N	N
71.2	Nature exhibits	N	Y ²	Y	Y*	N	N	N
72	Public assembly	N	N	N	Y	N	N	N
72.1	Auditoriums, concert halls	N	N	N	A	B	N	N
72.11	Outdoor music shell, amphitheaters	N	N	N	N	N	N	N
72.2	Outdoor sports arenas, spectator sports	N	N	N	Y ¹⁷	Y ¹⁷	N	N
73	Amusements	N	N	Y ⁸	Y	Y	N	N
74	Recreational activities (including golf courses, riding stables, water recreation)	N	Y ^{8,9,10}	Y	Y*	A*	B*	N
75	Resorts and group camps	N	N	N	Y*	Y*	N	N
76	Parks	N	Y ⁸	Y ⁸	Y*	Y*	N	N
79	Other cultural, entertainment and recreation	N	Y ⁹	Y ⁹	Y*	Y*	N	N
80	Resources production and extraction							
81	Agriculture (except livestock)	Y ¹⁶	Y	Y	Y ¹⁸	Y ¹⁹	Y ²⁰	Y ^{20,21}
81.5 to 81.7	Livestock farming and animal breeding	N	Y	Y	Y ¹⁸	Y ¹⁹	Y ²⁰	Y ^{20,21}
82	Agricultural related activities	N	Y ⁵	Y	Y ¹⁸	Y ¹⁹	N	N
83	Forestry activities and related services	N ⁵	Y	Y	Y ¹⁸	Y ¹⁹	Y ²⁰	Y ^{20,21}
84	Fishing activities and related services	N ⁵	Y ⁵	Y	Y	Y	Y	Y
85	Mining activities and related services	N	Y ⁵	Y	Y	Y	Y	Y
89	Other resources production and extraction	N	Y ⁵	Y	Y	Y	Y	Y

SLUCM - Standard Land Use Coding Manual, US Department of Transportation.

Y - (Yes) - Land use and related structures are compatible without restriction.

N - (No) - Land use and related structures are not compatible and should be prohibited.

Y^X - (yes with restrictions) - Land use and related structures generally compatible; see notes 1 through 21.

N^X - (no with exceptions) - See notes 1 through 21.

NLR - (Noise Level Reduction) - NLR (outdoor to indoor) to be achieved through incorporation of noise attenuation measures into the design and construction of the structures. See Appendix E, Vol II.

A, B, or C - Land use and related structures generally compatible; measures to achieve NLR for A(DNL 66-70), B(DNL 71-75), C(DNL 76-80), need to be incorporated into the design and construction of structures. See Appendix E, Vol II.

A*, B*, and C* - Land use generally compatible with NLR. However, measures to achieve an overall noise level reduction do not necessarily solve noise difficulties and additional evaluation is warranted. See appropriate footnotes.

* - The designation of these uses as "compatible" in this zone reflects individual federal agencies' and program considerations of general cost and feasibility factors, as well as past community experiences and program objectives. Localities, when evaluating the application of these guidelines to specific situations, may have different concerns or goals to consider.

NOTES

1. Suggested maximum density of 1-2 dwelling units per acre, possibly increased under a Planned Unit Development (PUD) where maximum lot coverage is less than 20 percent.
2. Within each land use category, uses exist where further definition may be needed due to the variation of densities in people and structures (See Vol 2, Appendix F).
3. The placing of structures, buildings, or aboveground utility lines in the clear zone (CZ) is subject to severe restrictions. In a majority of the CZs, these items are prohibited. See DODI.4165.7 for specific guidance.
4. No passenger terminals and no major aboveground transmission lines in APZ I.
5. Factors to be considered: labor intensity, structural coverage, explosive characteristics, and air pollution.
6. Low-intensity office uses only. Meeting places, auditoriums, etc., are not recommended.
7. Excludes chapels.
8. Facilities must be low intensity.
9. Clubhouse not recommended.
10. Areas for gatherings of people are not recommended.
11.
 - a. Although local conditions may require residential use, it is discouraged in DNL 65-70 dB and strongly discouraged in DNL 70-75 dB. An evaluation should be conducted prior to approvals, indicating that a demonstrated community need for residential use would not be met if development were prohibited in these zones, and that there are no viable alternative locations.
 - b. Where the community determines the residential uses must be allowed, measures to achieve outdoor to indoor Noise Level Reduction (NLR) for DNL 65-70 dB and DNL 70-75 dB should be incorporated into building codes and considered in individual approvals. See Appendix E for a reference to updated NLR procedures.
 - c. NLR criteria will not eliminate outdoor noise problems. However, building location and site planning, and design and use of berms and barriers can help mitigate outdoor exposure, particularly from near ground level sources. Measures that reduce outdoor noise should be used whenever practical in preference to measures which only protect interior spaces.
12. Measures to achieve the same NLR as required for facilities in DNL 65-70 dB range must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas or where the normal noise level is low.
13. Measures to achieve the same NLR as required for facilities in DNL 70-75 dB range must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas or where the normal noise level is low.
14. Measures to achieve the same NLR as required for facilities in DNL 75-80 dB range must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas or where the normal noise level is low.
15. If noise sensitive, use indicated NLR; if not, the use is compatible.
16. No buildings.
17. Land use is compatible provided special sound reinforcement systems are installed.
18. Residential buildings require the same NLR as required for facilities in DNL 65-70 dB range.
19. Residential buildings require the same NLR as required for facilities in DNL 70-75 dB range.
20. Residential buildings are not permitted.
21. Land use is not recommended. If the community decides the use is necessary, personnel should wear hearing protection devices.

Source: Holloman AFB, AICUZ Volume I Report, n.d.